Repair Manual

CC 2010 ➤ , Eos 2006 ➤, Golf 2004 ➤ , Golf 2009 ➤ , Passat 2006 ➤ , Passat 2011 ➤ , Passat CC 2009 ➤

Direct Shift Gearbox									
Engine ID	BPY	BUB	CCTA	CBFA	CBRA	CJAA			

Edition 02.2015

List of Workshop Manual Repair Groups

Repair Group

00 - General, Technical Data

30 - Clutch

34 - Controls, Housing

39 - Final Drive, Differential

Technical information should always be available to the foremen and mechanics, because their careful and constant adherence to the instructions is essential to ensure vehicle road-worthiness and safety. In addition, the normal basic safety precautions for working on motor vehicles must, as a matter of course, be observed.

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00 – General, Technical Data

1 General Information

(Edition 02.2015)

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⇒ “1.8 Troubleshooting”, page 5

⇒ “1.9 Transmission Identification”, page 7

⇒ “1.1 Capacities”, page 1

Eos ⇒ “1.2 Transmission Allocation Codes”, page 1

GTI/R32 (2006-2009)
⇒ “1.3 Transmission Allocation Codes”, page 2

Golf/GTI (from MY 2010)
⇒ “1.4 Transmission Allocation Codes”, page 2

Passat ⇒ “1.5 Transmission Allocation Codes”, page 2

CC ⇒ “1.6 Transmission Allocation Codes”, page 2

1.1 Capacities

Capacity	DSG® Transmission 02E
Initial fill in factory	Refer to ⇒ Fluid Capacity Tables; Rep. Gr. 03 (depending on vehicle and transmission build date).
Replacement capacity	Refer to ⇒ Fluid Capacity Tables; Rep. Gr. 03 .
Replacement capacity, Mechatronic only, removing and installing (transmission installed)	Refer to ⇒ Fluid Capacity Tables; Rep. Gr. 03 .
Lubricant:	For the correct transmission fluid. Refer to the Parts Catalog.

For more details. Refer to the part number on the container.

For the correct transmission oil. Refer to the Parts Catalog.

Capacity	Front Bevel Box
Initial Fill	Refer to ⇒ Fluid Capacity Tables; Rep. Gr. 03 .
Change	Refer to ⇒ Maintenance Intervals; Rep. Gr. 03 .
Lubricant	For the correct transmission fluid. Refer to the Parts Catalog.

For more details. Refer to the part number on the container.

For the correct transmission fluid. Refer to the Parts Catalog.

1.2 Transmission Allocation Codes

If original replacement parts are needed for a repair, always pay attention to the transmission codes.

Direct Shift Gearbox (DSG®) 02E	
HYD, JPR, KDB, KNH, LQY, KPU, LTK, MLZ, MSK, NJM, NLQ, PBG, PPZ	HYE, HTG, JPN, KCY, KNJ, KPX, LRB

Direct Shift Gearbox (DSG®) 02E	
2.0L - 147 kW FSI-Turbo	3.2L - 184 kW gas engine SRE

1.3 Transmission Allocation Codes

If original replacement parts are needed for a repair, always pay attention to the transmission codes.

Direct Shift Gearbox (DSG®) 02E	
With a drain plug, through September 20, 2004	HBQ, HRW
Without a drain plug, after September 20, 2004	HUS, HUT, HXW, JPP, KCZ, KNC, KPV
	2.0L - 147 kW FSI-Turbo

Direct Shift Gearbox (DSG®) 02E
HUV, GUF, GYB, HDD, HKA, HPZ, HXZ, JUQ, KDE, JUQ, KNL, JPZ, KQA, JYX, KQA, LRF, LTU
3.2L - 184 kW gas engine

1.4 Transmission Allocation Codes

If original replacement parts are needed for a repair, always pay attention to the transmission codes.

Direct Shift Gearbox (DSG®) 02E	
LTE, LQV, KQC, MFL, MSV, NJK	LTL, LQZ, MDJ, MMA, MSY, NJR, NJL, NLR
2.0L - 103 kW TDI CR	2.0L - 147 kW FSI-Turbo

1.5 Transmission Allocation Codes

If original replacement parts are needed for a repair, always pay attention to the transmission codes.

Direct Shift Gearbox (DSG®) 02E
LQY, LTK, MLZ
2.0L - 147 kW FSI-Turbo

1.6 Transmission Allocation Codes

If original replacement parts are needed for a repair, always pay attention to the transmission codes.

Direct Shift Gearbox (DSG®) 02E
LQY, LTK, MLZ, MSX, NJM, NLQ, NNU
2.0L - 147 kW FSI-Turbo

1.7 General Repair Information

Tools

A complete list of special tools and workshop equipment used in this repair manual can be found at the beginning of each repair procedure and at the end of each repair group.

For small fasteners with a minimal tightening specification, uncertainties often exist. Use the Torque Wrench 1783 - 2-10 Nm -VAG1783- for these fasteners.

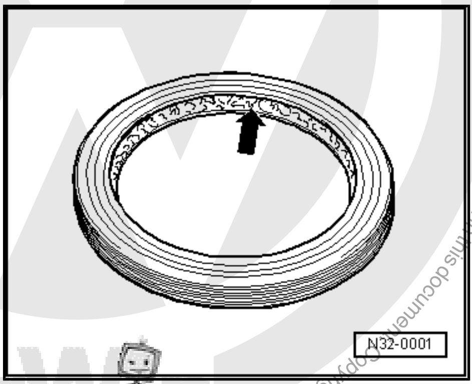
Transmission

Always make sure no dirt can get into an open transmission. Dirt entering an open transmission, can cause a malfunction especially with a open DSG® transmission Mechatronic and/or oil pump.

- Do not run the engine and do not tow the vehicle if the transmission cover is removed or if there is no DSG® oil inside the transmission.
- Always clean the connection points and the surrounding areas first, and then loosen them.
- When installing the transmission, make sure the alignment sleeves are correctly installed between the engine and transmission.
- Place removed parts on a clean surface and cover them so that they do not get dirty. Use foil, paper or a lint free cloth.
- Only install clean components: Only unpack replacement parts immediately prior to installation.
- Carefully cover or seal unpacked components if repairs cannot be performed immediately.

Seals

- Replace the O-rings, seals and gaskets.
- After removing O-rings and seals, always inspect the contact surfaces on the housing or shaft for burrs resulting from removal, or for other signs of damage.
- Before installing the seal, lightly oil the outer circumference and fill the space between the sealing lips -arrow- halfway with Sealing Grease for Seal - G 052 128 A1- .



- The open side of the seal point toward the fluid to be sealed in.
- Use Direct Shift Gearbox (DSG®) oil only. Other lubricants cause malfunctions.
- After replacing the seals, O-rings and gaskets, check the fluid level and fill if necessary. Refer to ⇒ “1.2 Transmission Oil Level, Checking and Filling”, page 28 .

DSG® Oil

Shake the container before opening it.

The DSG® oil is obtainable as a replacement part. For the correct part number. Refer to the Parts Catalog.

The Oil Quality Is of Vital Importance for Transmission Function.

Do not mix additives into the oil. Do not fill with a different oil.

The drained oil must not be reused again.

> ⚠ Caution
>
> *Be cautious when dealing with DSG® oil. Dispose of the drained oil properly. Bear in mind that: One drop of oil can make 600 liters (158.5 gallons) of drinking water unusable.*

When To Change the Oil Filter

The filter does not need to be changed in every case.

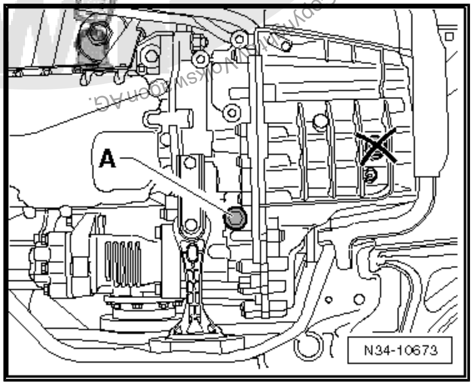
DO NOT Replace the Filter If:

- ♦ The oil cooler or its O-rings were replaced and no coolant has gotten into the oil.
- ♦ The selector shaft seal was replaced.
- ♦ The flange or stub shaft seal was replaced.
- ♦ The Mechatronic covers were leaking, the Direct Shift Gearbox (DSG®) clutch or oil pump were replaced.
- ♦ The transmission input speed sensor and the clutch oil temperature sensor were replaced.

The Filter MUST Be Replaced If:

- ♦ When the maintenance interval is reached. Refer to ⇒ Maintenance Intervals; Rep. Gr. 03 .
- ♦ Coolant has entered the oil.
- ♦ Metal shavings were found in the oil.
- ♦ The clutch is burned or has a mechanical fault.

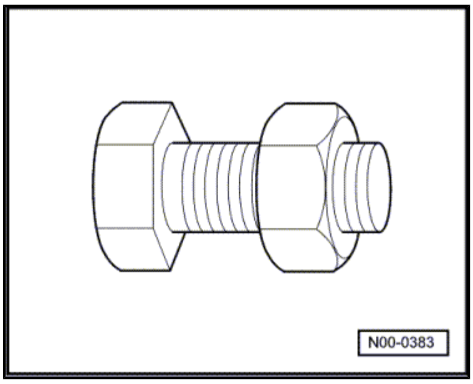
Oil Drain and Inspection Plugs



Up to transmission production date “September 20, 2004”, transmissions with two plugs were built.

Then, the second plug -X- was eliminated so that oil draining and the level adjusting is done using only the one plug -A-.

A plastic overflow tube is located behind this plug (with a 8 mm hex socket head, tightening specification: 3 Nm). Its length determines the oil level in the transmission.



Bolts and Nuts

- Loosen or tighten bolts and nuts for the covers and housings diagonally.
- The tightening specification stated applies to non-lubricated nuts and bolts.
- Use a wire brush to clean the threads of bolts that were installed using locking fluid. Install the bolts using Liquid Locking Fluid - AMV 185 100 A1- .
- Use a thread tap to clean all threaded holes containing self-locking bolts to remove any locking fluid residue. Otherwise the bolts could shear the next time they are removed.
- Always replace self locking nuts and bolts.

Electrical Components

You have probably received a electrical shock at one time, when touching a metal item. The reason behind this is the electrostatic charge to the human body. This charge can damage the electrical components on the transmission and the selector mechanism.

– Touch a grounded object before working on electric components. Do not touch connectors or open electronic components directly.

1.8 Troubleshooting

Before beginning any repair work, the cause of the damage should be pinpointed using “Guided Fault Finding”.

Perform `Guided Fault Finding`. Refer to Vehicle Diagnostic Tester

Control Module Behavior When There Is a Malfunction, Information

The control module works with developed software. This software has the ability to execute electrical functions, monitor and control within milliseconds. Everything modern transmission electronics have going for them is located in this control module. This should also be considered during troubleshooting.

However, no electronics can do what they were not designed to do. Likewise, it is not possible to detect electronically, for example, where the transmission housing is leaking and oil is escaping. However, it is possible to detect the effects of low oil. A failure in gear monitoring would be recognized causing the control module to respond that both clutches are open (no traction).

You should know this during troubleshooting and also when working with the tester. It is possible that the cause for the malfunction might not be found during `Guided Fault Finding`

In addition to updating the software, much has been done to protect the transmission should there be a malfunction (safety features). And so, when necessary, malfunctions are saved and a replacement program is started.

Control Module Behavior During a Malfunction

If a component in the transmission malfunctions, the control module reacts with a replacement function. In order to protect the transmission, there are 4 different kinds of malfunctions:

1 - The malfunction is so minor that it is possible to continue driving with a replacement program while maintaining driving safety. The driver is not notified of this via the selector lever transmission range display. The display shows the selector lever position normally. When can changes in driving behavior actually be detected.

2 - Individual lever positions blink in the selector lever transmission range display. The driver is shown that a desired gear selection is currently not possible. An example: Reverse, lever in “R” and vehicle drives backward. If “D” is engaged in this situation, the letter “D” blinks in the selector lever transmission range display. In this case, the control module prevents 1st gear from being engaged to avoid damaging the transmission. The gear is only engaged when the vehicle is stopped.

3 - The selector lever transmission range display is completely lit up and blinks. The selector lever position is indicated. An example of this: Transmission oil temperature is too high. Reasons can be, among other things: Towing a trailer with too heavy of a load, installing accessories on front of the vehicle, lack of cooling air.

4 - The selector lever position cannot be recognized. The selector lever transmission range display blinks. Differences in the driving and shifting can definitely be felt. It is not possible to shift into reverse. There is a serious malfunction, a sub-transmission is switched off, transmission repair is necessary.

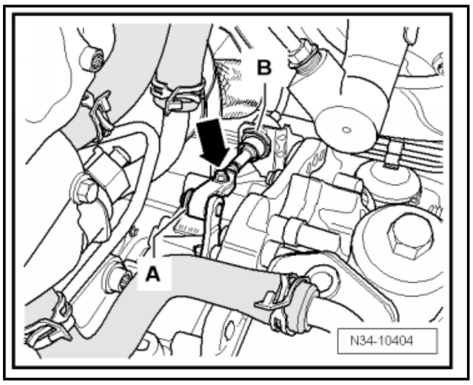
Troubleshooting, Special Information

Selector Lever Position Display, No “R”:

Simultaneous lighting of all segments of the transmission range selector lever display indicates the transmission is in emergency running mode. The vehicle does not drive in reverse.

Tip Function Malfunction, No Gear Selection:

Check the lock washers on the selector lever cable bracket at the top of the transmission. Washer -B- especially must never be used twice.



The lock washer -B- can get lost if it looses its residual stress. The -arrow- points to the cable adjustment bolt.

Drive Faulty - Insufficient Oil Suspected:

First, go to “DSG® Oil”. Refer to ⇒ page 3 .

Only add oil if you have definitely seen oil is leaking. Under any other circumstances it is just a needless expense that does not help.

No Faults are Stored:

This especially depends on you. Experience shows that often a fault that is attributed to the transmission was caused by other components or units.

Poor shifting behavior is a result of insufficient engine air supply. Do not make mistakes like this.

If such faults are to be eliminated, you can work sensibly with the Volkswagen tester.

Faults are Stored:

Find out which faults have been stored. Volkswagen testers offer `Guided Fault Finding`. Using `Guided Fault Finding` can determine the cause of many malfunctions.

Malfunctions Outside the Transmission:

If, for example, there is a malfunction in the transmission: “ABS signal missing” is stored in the transmission and perhaps another control module also says: “ABS signal missing”: Then do not continue to suspect the transmission control module is faulty.

The entry simply means: The transmission (and possibly other control modules) is waiting for a signal via the BUS but is not receiving it. In this case, the Anti-lock Brake System (ABS) has a problem. Under no circumstances should you remove the Mechatronic unit. In this example, the fault points to problems with the ABS.

1.9 Transmission Identification

Example -arrow-:

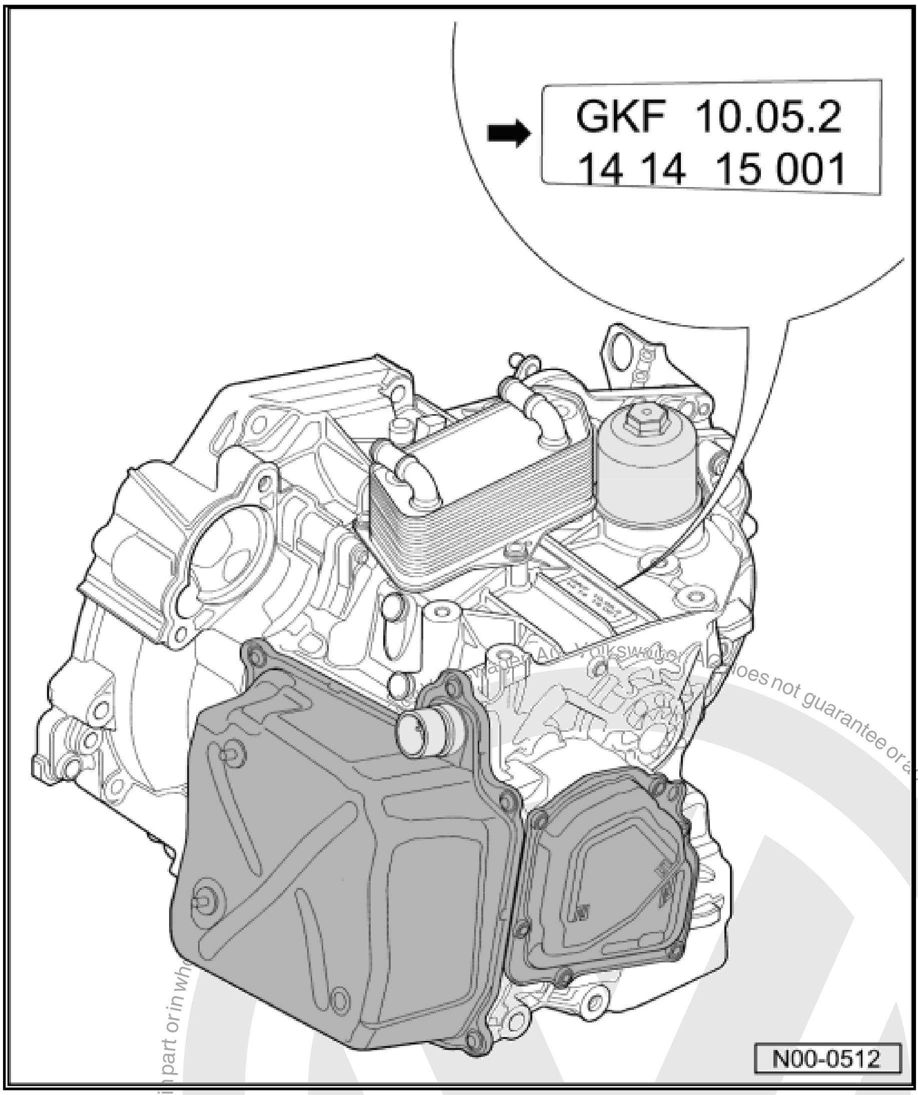
GKF - Transmission Code

10.05.2 - May 10, 2002

14 - Plant Code

14 15 - Time

001 - Serial Number



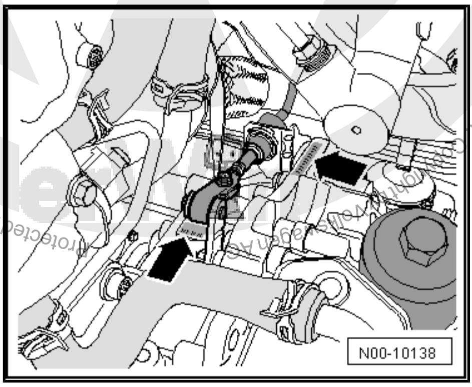
On some transmissions, additional code letters are applied at the top of the transmission in the vicinity of the selector lever cable -arrows-.

The transmission code is also listed on the vehicle data label.

If the vehicle data label is not available, a different transmission was accidentally installed or there is no definite way to identify the installed transmission, read the transmission code letters directly from the transmission.

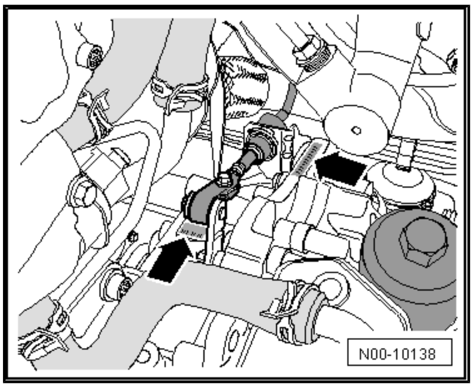
Transmission Code Letter, Reading

The transmission code letters are on the transmission in at least in two different locations.

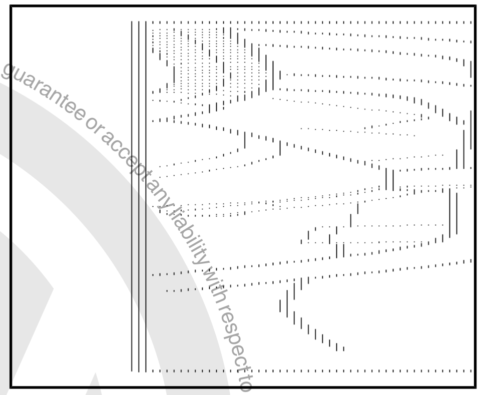


On the transmission near the selector lever cable two -arrows-.

If these cannot be read, then transmission code letters can also be read under the transmission mount bracket.



To read the transmission code letters under the bracket directly from the transmission, the engine and transmission must be supported. The transmission mount bracket -A- must be removed. Lower the engine/transmission just enough until it is possible to slide the bracket toward the rear. If lowered further, the pendulum support could be damaged. After being assembled, the selector lever cable must be adjusted. Refer to ⇒ “2.3 Selector Lever Cable, Adjusting”, page 35 .



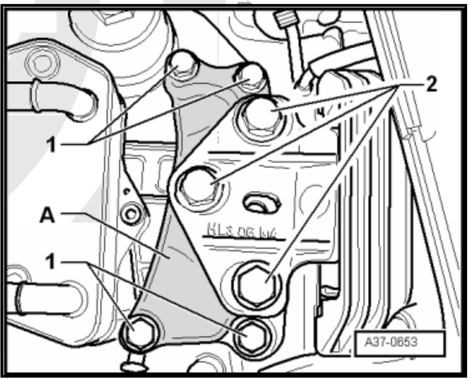
A detailed description of how to remove the bracket is not needed here. Refer to “Transmission, Removing”.

Short Description

Remove the air filter housing and battery.

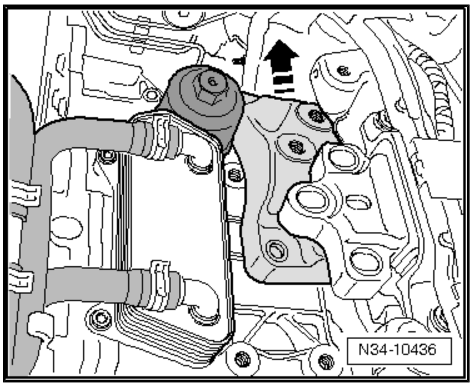
Install the Engine Support Bridge - 10-222A- and support the engine/transmission. Do not lift it up yet.

- Remove the engine mount to engine mount bracket bolts -2- and the engine mount bracket to transmission bolts -1-.
- Then, lower the engine/transmission slightly using the Engine Support Bridge - 10-222A- spindles until the bracket -A- can be removed.



In most cases, 2 turns on the spindle are enough to remove the bracket in direction of -arrow-.

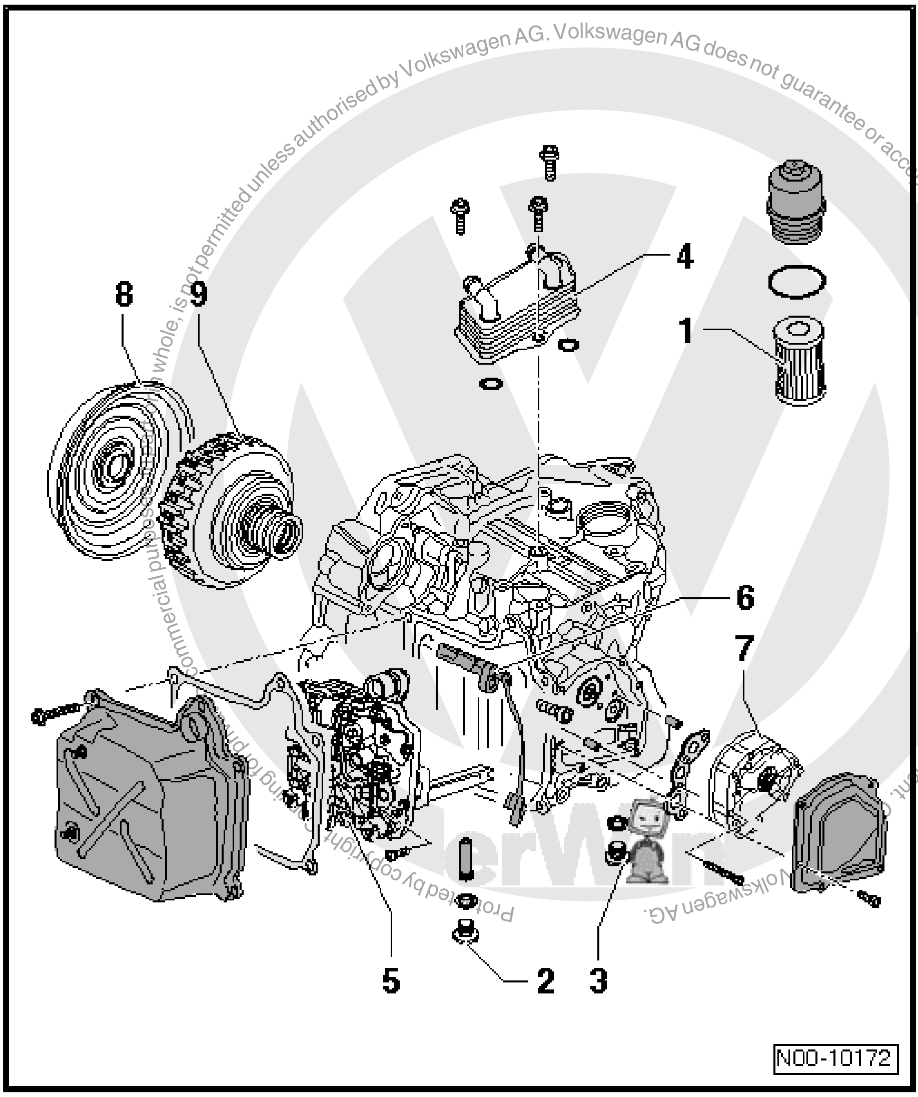
- After installing the bracket, always adjust the selector lever cable. Refer to ⇒ “2.3 Selector Lever Cable, Adjusting”, page 35 .



2 Description and Operation

⇒ “2.1 Overview - Transmission Component”, page 10

2.1 Overview - Transmission Component



1 - Filter

- ❏ Refer to ⇒ “5.12 Oil Filter”, page 82 .
- ❏ For information on when to change the filter. Refer to ⇒ page 4 .

2 - Inspection Plug

- ❏ Refer to ⇒ page 4
- ❏ Near the pendulum support.

3 - Oil Drain Plug

- ❏ See “DSG® Oil”. Refer to ⇒ page 3 .
- ❏ This plug is no longer installed as of September 2004. The oil can be drained through the inspection plug.

4 - Transmission Oil Cooler

- ❏ Refer to ⇒ “5.6 Transmission Oil Cooler”, page 64 .

5 - DSG Transmission Mechatronic - J743-

- ❏ Refer to ⇒ “2.1 DSG® Electric/ Electronic Components and Locations”, page 34 .

6 - Transmission Input Speed Sensor - G182- and Clutch Oil Temperature Sensor - G509-

- ❏ Refer to ⇒ “2.1 DSG® Electric/Electronic Components and Locations”, page 34 .

7 - Oil Pump

- ❏ Refer to ⇒ “5.7 Oil Pump”, page 66 .

8 - Dual Clutch Cover (End Cover)

9 - Dual Clutch

- ❏ Refer to ⇒ “1.1 Overview - Direct Shift Gearbox”, page 11 .

30 – Clutch

1 Description and Operation

⇒ “1.1 Overview - Direct Shift Gearbox”, page 11

1.1 Overview - Direct Shift Gearbox

Short Description

- The Direct Shift Gearbox (DSG®) clutch contains 2 toothed plate packs. The outer, larger disc pack is called “K1 ” (clutch 1). The “K1” shifts reverse gear and 1st, 3rd, and 5th gears. The inner, smaller “K2” (clutch 2) shifts 2nd, 4th and 6th gears.
- Assembling the DSG® clutch requires special care, because all the components were balanced to each other at the manufacturer. When positioning the components during installation, do not rotate them from their original position, otherwise imbalances will occur, reducing the shift comfort and the life span.

Replacement Part Package

1 - DSG® Clutch and Lock Ring

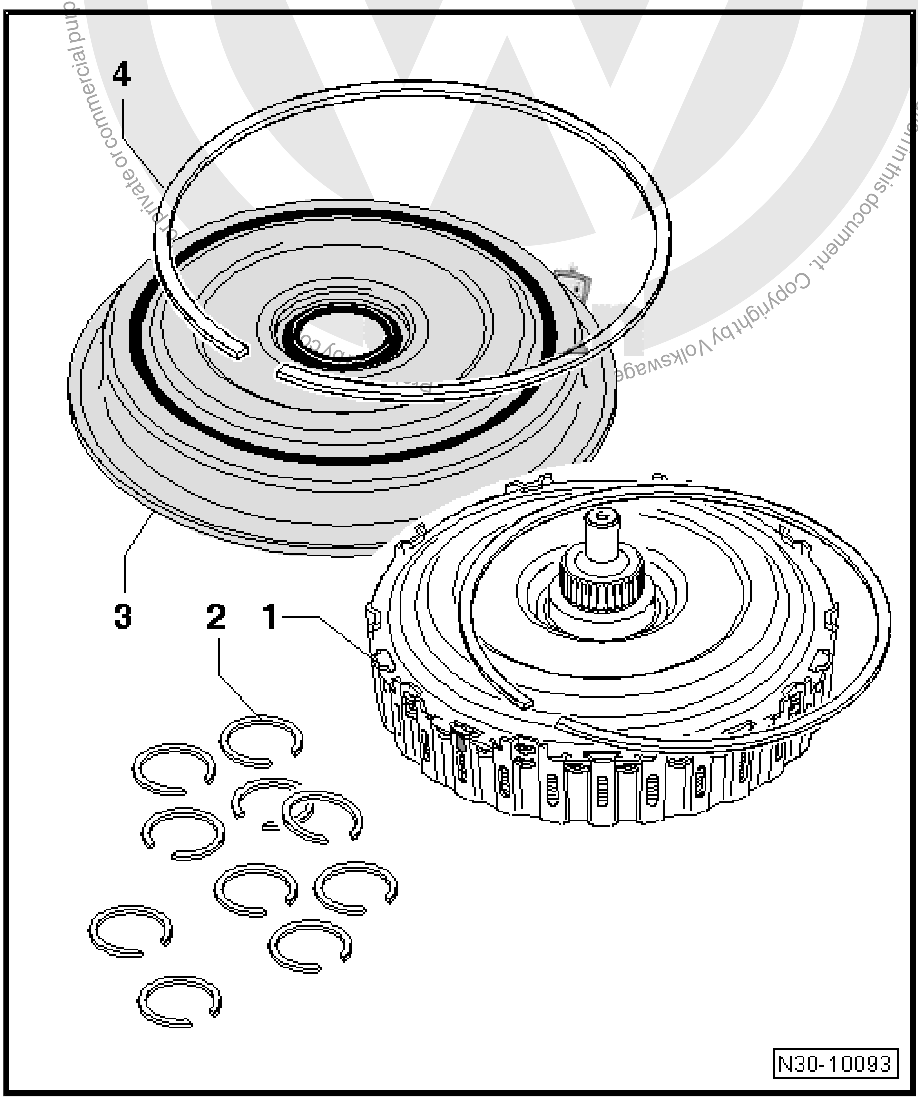
> **Caution**
>
> *The drive plate (upper part of the DSG® clutch) of a new clutch is not secured with the lock ring, it only sits taut in the clutch.*
>
> *The drive plate must be engaged between the teeth of the exterior clutch pack.*
>
> *If the drive plate is loosened, the clutch discs in the DSG® clutch can slip out of place and the DSG® clutch may not be correctly set during installation under certain circumstances.*

2 - Circlips

- ❑ Qty. 10, with various thicknesses for adjusting.
- ❑ When installing the clutch, the thickness of the circlip must be determined. Refer to ⇒ page 20 .

3 - Clutch End Cover

4 - Clutch End Cover Lock Ring



Individual Parts of the Disassembled DSG® Clutch

⚠ Caution

1 - DSG® Clutch/Clutch Housing

☐ Outer clutch pack carrier.

2 - Seals

☐ Quantity: 4

3 - Inner Clutch Pack Carrier

☐ Do not remove.

⚠ Caution

Do not lift or remove the inner clutch pack carrier, under any circumstances. The clutch discs could rotate themselves.

4 - Outer Discs

☐ Quantity: 4

5 - Inner Discs

☐ Quantity: 4

6 - Thrust Washer

7 - Lock Ring

☐ If the lock ring was removed in order to install the discs, it should be replaced with a new lock ring of the same thickness.

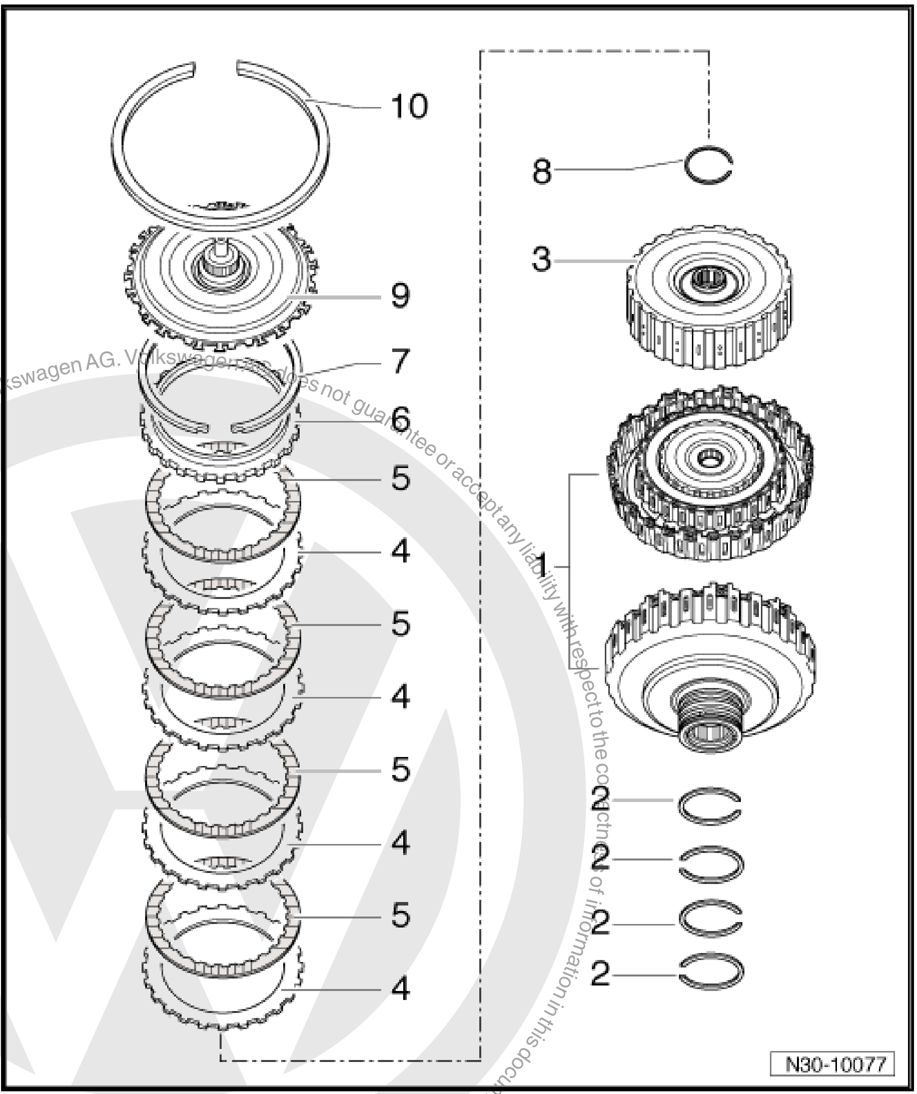
8 - Lock Ring

☐ Reset after installing a new clutch. Refer to ⇒ page 20 .

9 - Drive Plate

10 - Lock Ring

☐ Always replace.



2 Removal and Installation

⇒ “2.1 Clutch Cover, Removing”, page 13

⇒ “2.2 Clutch, Removing”, page 15

⇒ “2.3 Clutch, Installing and Adjusting”, page 17

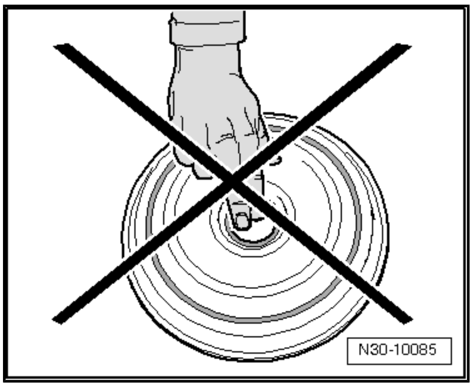
⇒ “2.4 Clutch End Cover, Installing”, page 22

2.1 Clutch Cover, Removing

Short Description

The cover seals the transmission from the outside. It is held in place by a lock ring. Remove the lock ring and pry out the cover. Always replace the cover and the lock ring. Never use a hammer to install the cover and never lubricate the center seal or touch it. If this should occur, the cover will certainly leak!

The transmission must be removed in order to work on the cover.

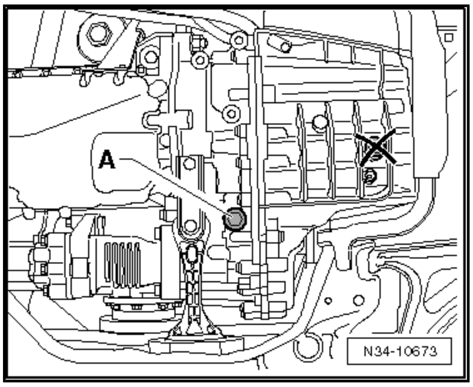


– Drain the oil.

Up to transmission production date “September 20, 2004”, transmissions with two plugs were installed.

Then, the second plug was deleted so that only the one plug -A- can be used to drain the oil or to adjust the oil level.

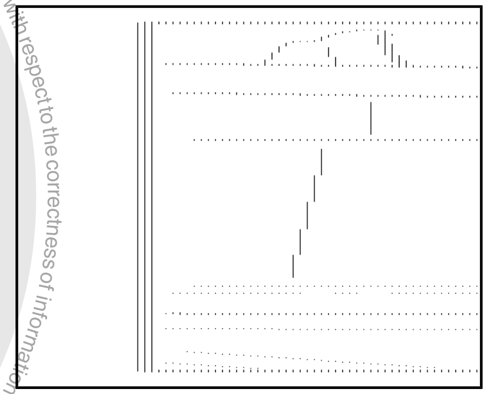
A plastic overflow tube is located in this hole (with a 8 mm hex socket head, tightening specification: 3 Nm). Its length determines the oil level in the transmission.

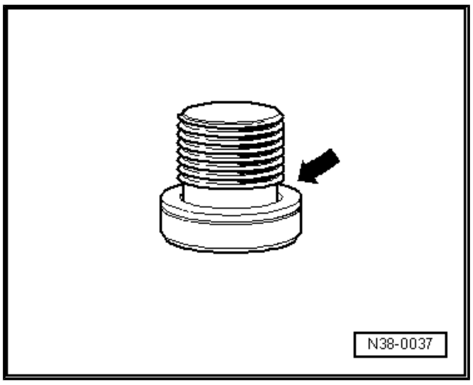


– Remove the overflow tube -arrow- and let the oil drain.

About 5 liters (5.28 qts) of oil will drain.

– Reinstall the overflow tube and tighten it to 3 Nm.





- Insert the oil drain plug and the new seal -arrow- and tighten it by hand.
- Remove the transmission. Refer to one of the following:

  Eos with a 2.0L TFSI engine. Refer to ⇒ “5.13 Transmission, Removing”, page 83 .

  Eos with a 3.2L engine. Refer to ⇒ “5.14 Transmission, Removing”, page 88 .

  GTI (2006-2009) with a 2.0L TFSI engine. Refer to ⇒ “5.15 Transmission, Removing”, page 92 .

  R32 (2008). Refer to ⇒ “5.16 Transmission, Removing”, page 96 .

  GTI (from 2010) with a 2.0L TFSI engine. Refer to ⇒ “5.18 Transmission, Removing”, page 107 .

  Golf with a 2.0L TDI engine. Refer to ⇒ “5.19 Transmission, Removing”, page 112 .

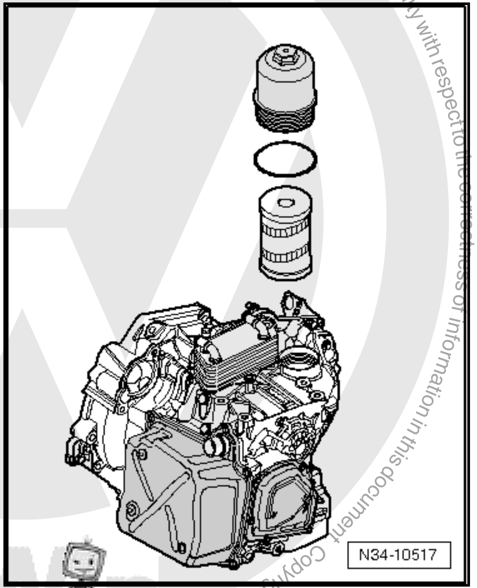
  Passat. Refer to ⇒ “5.20 Transmission, Removing”, page 118 .

  CC. Refer to ⇒ “5.21 Transmission, Removing”, page 122 .
- Secure the transmission to the assembly stand. Refer to ⇒ “5.22 Transmission, Transporting and Securing to the Assembly Stand”, page 130 .

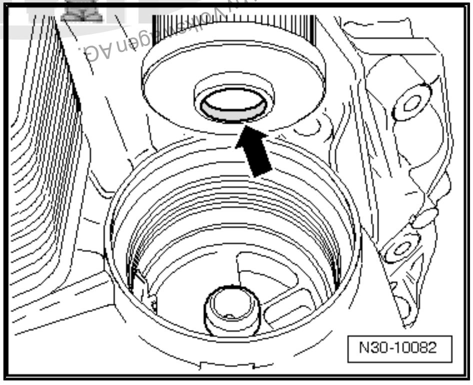
- If it is necessary, remove the filter.

There Are Often Uncertainties as to Whether the Filter Must Be Replaced or Not.

For information on when to change the filter. Refer to ⇒ page 4 . This can help when making this decision.

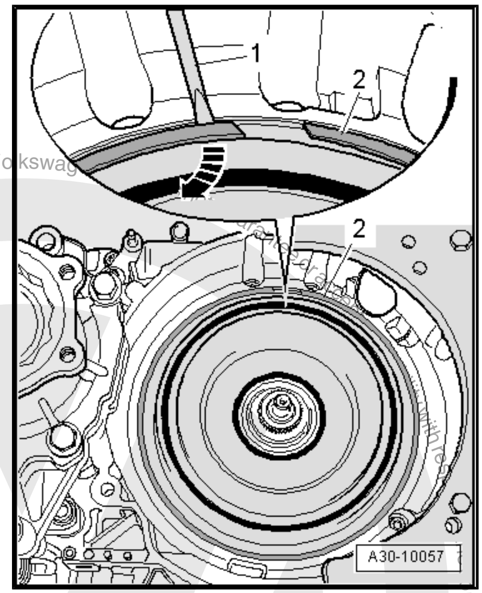


- Insert the new filter with the seat facing downward and tighten the housing to 20 Nm.
- After repairing, you do not have to change the filter again when filling the oil.



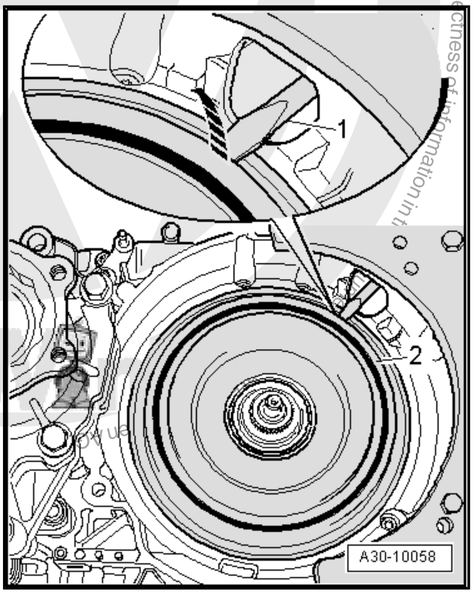
Remove the Clutch Cover.

– Pry out and remove the lock ring -2- for the clutch cover with a screwdriver -1- in direction of -arrow-.



– Lift the clutch cover -2- through the opening in the starter with a screwdriver -1- or a pry bar in direction of -arrow- and then remove it.

Install a “new” cover only. Refer to ⇒ “2.4 Clutch End Cover, Installing”, page 22 .

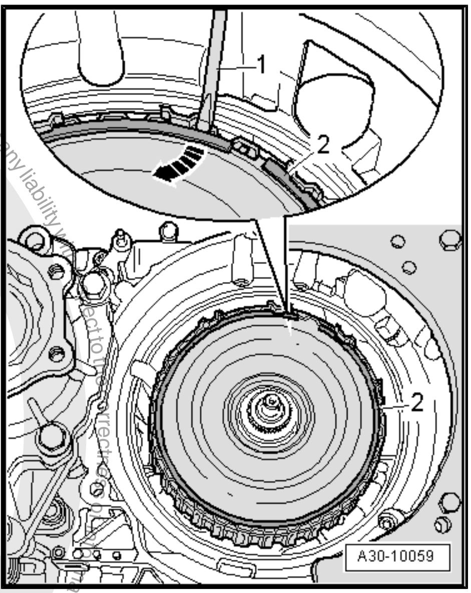


2.2 Clutch, Removing

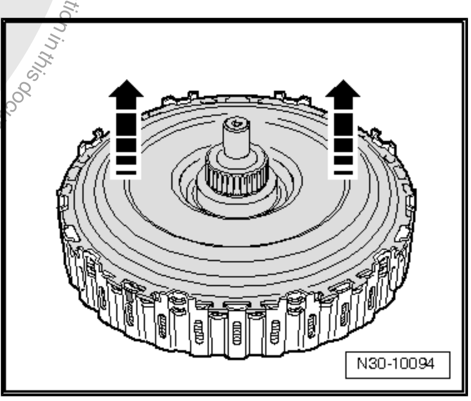
To remove and install the clutch, the transmission must be secured in a vertical position on the assembly stand.

– Remove the clutch cover. Refer to ⇒ “2.1 Clutch Cover, Removing”, page 13 .

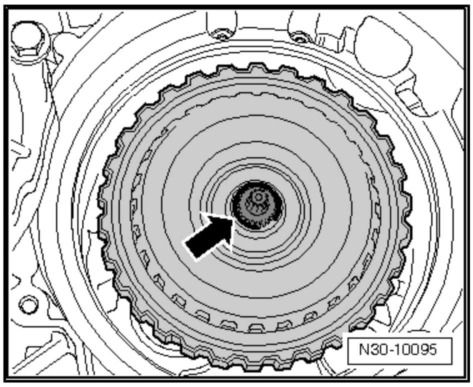
- Remove the lock ring -2- from the drive plate with a screwdriver -1- in direction of -arrow-.



- Remove the drive plate in direction of -arrows-.



- Remove the circlip -arrow- and dispose of it.



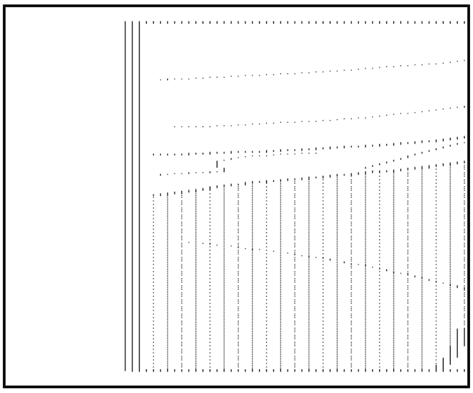
Note

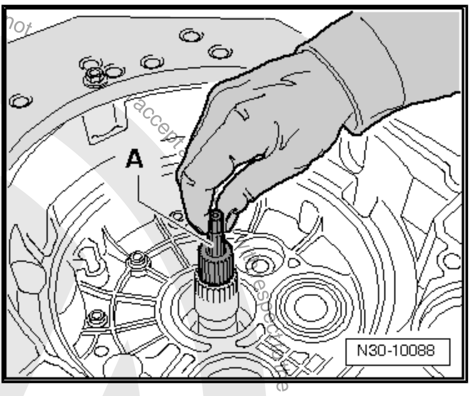
This circlip must be replaced and re-measured during installation.

Caution

Carefully remove the clutch. Make sure that no other parts of the clutch fall out; for this reason, never turn over the clutch!

- Remove the clutch.





– Remove the pump shaft -A-.

– The pump shaft will first be used after the installation of the new clutch. Lay the shaft down until then.

2.3 Clutch, Installing and Adjusting

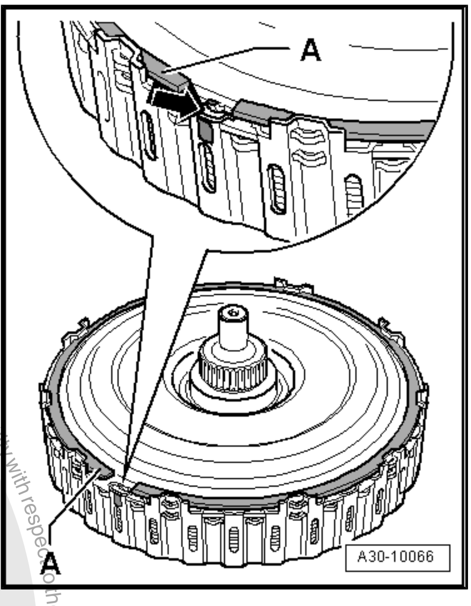
Caution

- ♦ *The drive plate of a new clutch is not secured with the lock ring, it only sits “taut” in the clutch.*
- ♦ *Thus, press the drive plate into the outer clutch pack carrier with both thumbs during the following steps.*
- ♦ *The drive plate must be engaged between the teeth of the exterior clutch pack.*
- ♦ *If the drive plate is loosened, clutch discs in the clutch can slip out of place. The clutch may not be correctly set during installation under certain circumstances.*

– Take the clutch out of the packaging by pressing the drive plate into the outer clutch pack carrier with both thumbs.

– Next, secure the drive plate in the externally toothed plate carrier with the “old” lock ring -A- from the removed clutch.

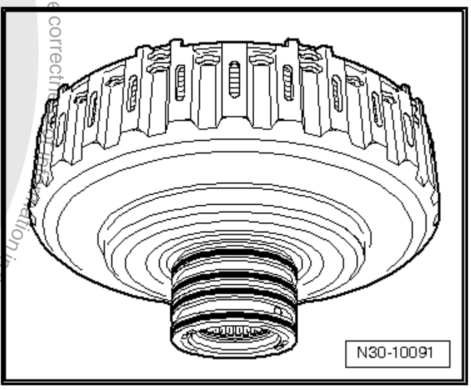
- Do not use the new lock ring that was delivered with the package.
- The lock ring must be installed so that the tab of the drive plate -arrow- and the color marked teeth of the outer clutch pack carrier are positioned between both ends of the lock ring.



– Check the bottom side of the multi-plate clutch to see if the 4 hub seals are seated correctly and engage them in one another if necessary.

- The ends of the seals should not overlap one another.

– Turn the seals one time. They must move freely and must not stick.



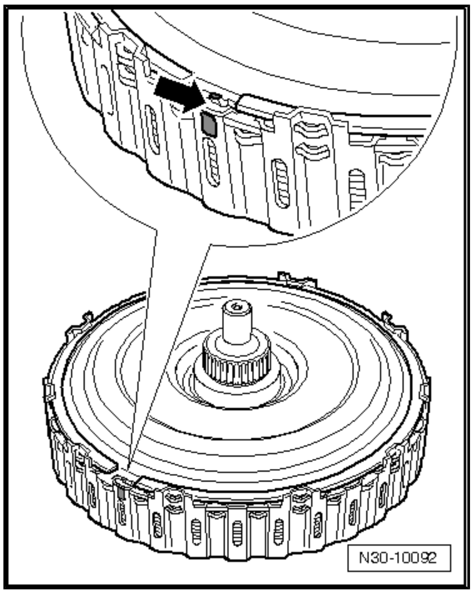
Important! Installed Position of the Drive Plate

– Verify that the protruding tab -arrow- on the drive plate is positioned between the color marked teeth of the outer clutch pack carrier.

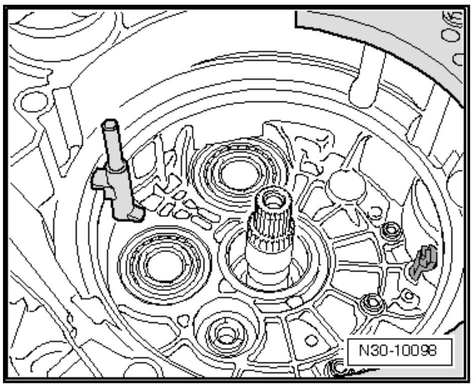
If no mark is available:

– Mark the location of the tab to the outer clutch pack carrier circumference with a waterproof marker as shown in the illustration.

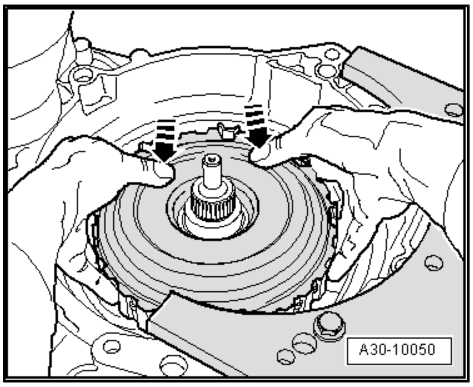
- When installing, the drive plate tab must be placed back on this marked location.



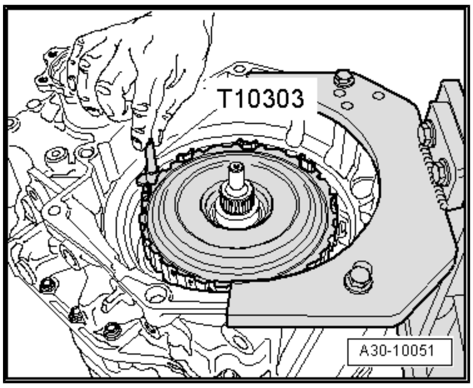
- Place the Clutch Retaining Bar - T10303- in position on the clutch cover as shown in the illustration.



- Set the clutch using a rotating motion into the clutch housing, but do not let it fall in. Press the drive plate into the outer clutch pack carrier with both thumbs in direction of -arrows- to install.



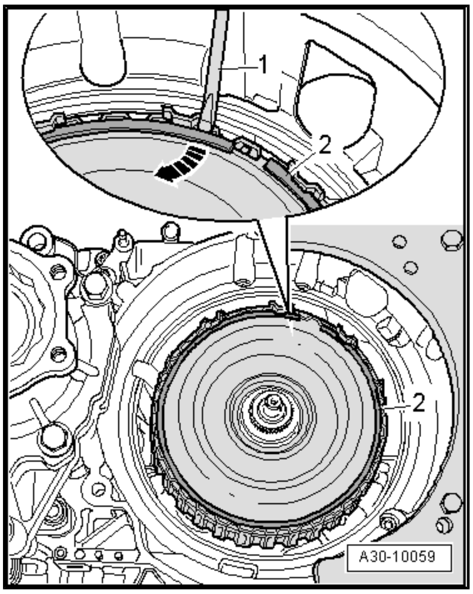
- A second technician should hold the Clutch Retaining Bar - T10303- .



Note

- ♦ *The retaining bar remains there until the clutch end cover is installed.*
- ♦ *The clutch must not be turned any more, otherwise the Clutch Retaining Bar - T10303- could be twisted in its position.*

- Remove in direction of -arrow- and dispose of the old lock ring -2- using a screwdriver -1-.

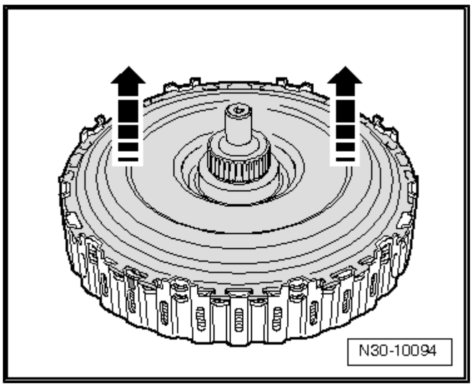


Caution

Do not remove or lift the inner clutch pack carrier, under any circumstances. The clutch discs could rotate themselves.

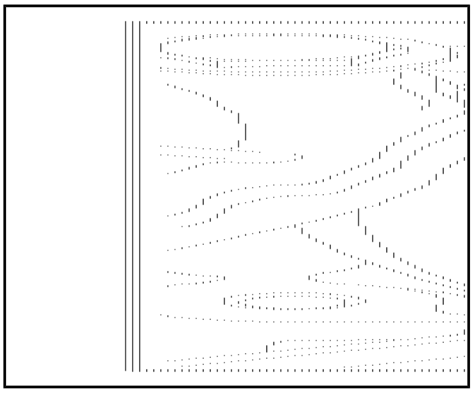
– Remove the drive plate from the installed clutch in direction of -arrows-, if necessary, use a screwdriver to carefully pry it out of the teeth of the outer clutch pack carrier.

– Move the drive plate to the side.



Identify the Circlip for the Clutch

– Select the 2 mm thick circlip from the circlips delivered and install it -arrow-.



Note

This circlip is temporarily installed for the measurement of the axial play.

First Measurement:

- The Clutch Retaining Bar - T10303- remains installed.

– Install the Dial Gauge Holder - VW387- to the transmission flange.

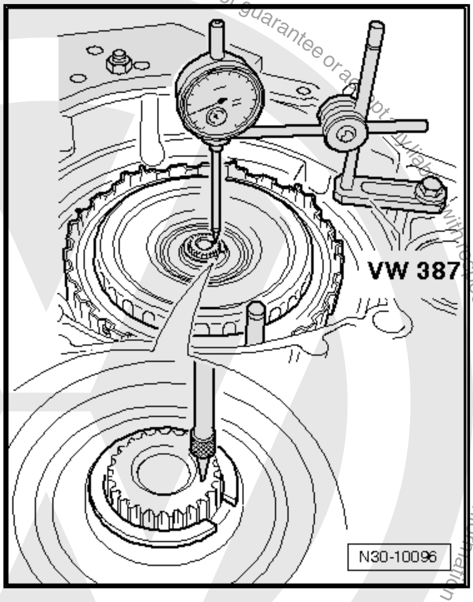
– Place the dial gauge button on the input shaft.

– Adjust the dial gauge pretension to 0.

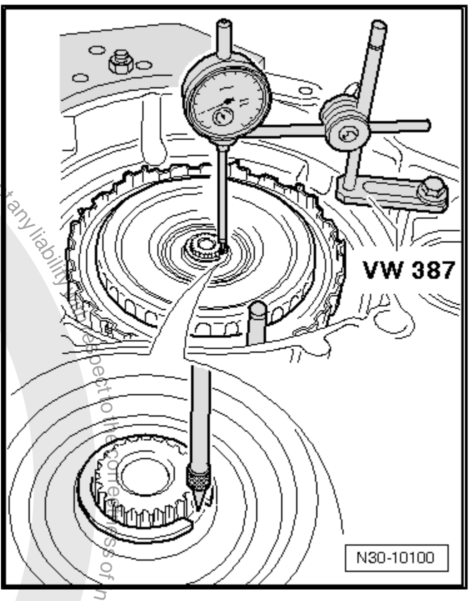
– Raise the clutch up as far as the stop and note the measurement

Second Measurement:

- The Clutch Retaining Bar - T10303- remains installed.



- Place the gauge button on the hub of the large clutch pack carrier.



• The tip of the dial may not be placed on the circlip.

- Readjust the dial gauge pretension to 0.
- Raise the clutch up as far as the stop again and note this measurement as well

Now the Calculation Will Be Made to Determine Which of the Remaining Nine Circlips Will Be Installed:

- Use this formula:

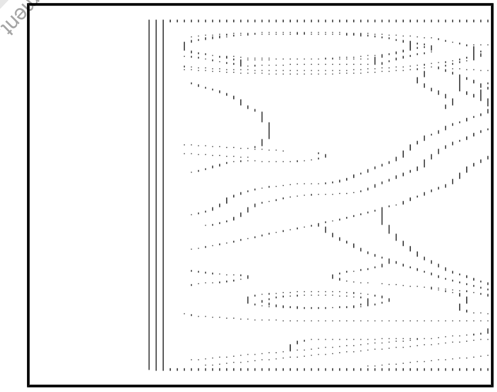
2nd measured value – 1st measured value + 1.85 mm = Circlip thickness

- Write down the result.

The remaining nine circlips are staggered in 0.1 mm increments.

- Measure all the circlips and determine the one that is the closest match to the result

Determined Measurement for the New Circlip	New Circlip
2.27 mm	2.3 mm
2.24 mm	2.2 mm

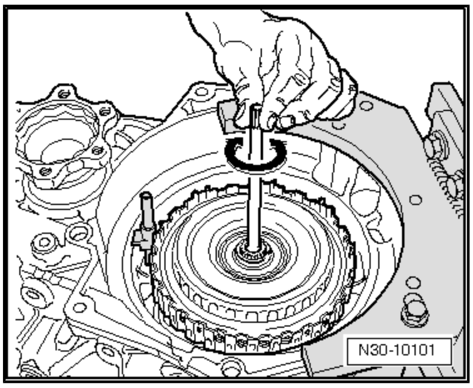


- Remove the 2 mm circlip and replace it with the circlip that was measured.
- Dispose of all the other remaining circlips and the 2 mm circlip.

Note

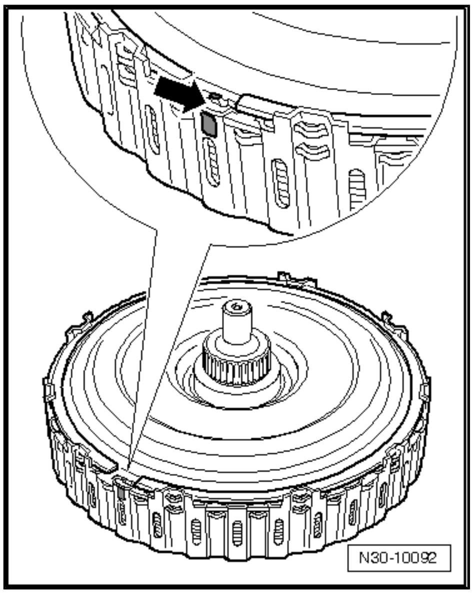
Circlips must only be installed one time.

- Insert the pump shaft.



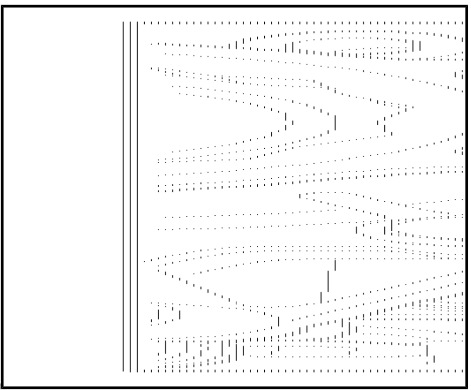
Note

The pump shaft must be slightly lifted and rotated -arrow- in order for it to completely slide into the splines.



- Insert the drive plate into the clutch.

- The protruding tab of the drive plate must be positioned between the color marked teeth of the outer clutch pack carrier. Make note of the marks that have been changed retrospectively.



- Install the new drive plate lock ring.

- The lock ring must be installed so that the tab of the drive plate and the color marked teeth of the outer clutch pack carrier are positioned between both ends of the lock ring.

- The lock ring must be completely engaged.

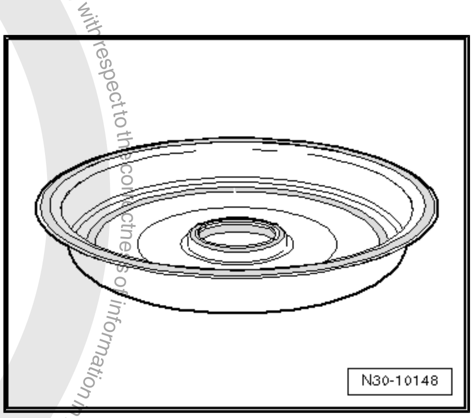
- Check the exact installed position of the lock ring and that the lock ring is engaged using a screwdriver.

- Now remove the Clutch Retaining Bar - T10303- from between the clutch and the housing.

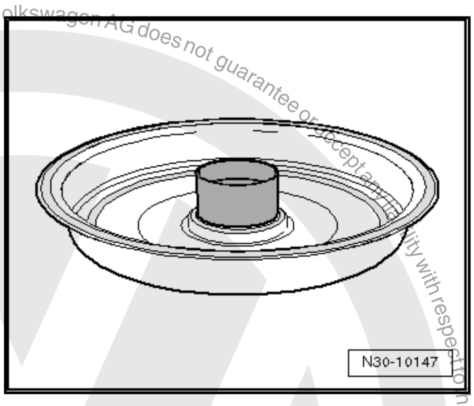
- Install the clutch end cover. Refer to ⇒ “2.4 Clutch End Cover, Installing”, page 22 .

2.4 Clutch End Cover, Installing

There Are Two Types of Covers.



- Refer to ⇒ “2.4.1 Covers that are Delivered without Bushings”, page 23
- Refer to ⇒ “2.4.2 Covers that are Delivered with Bushings”, page 25

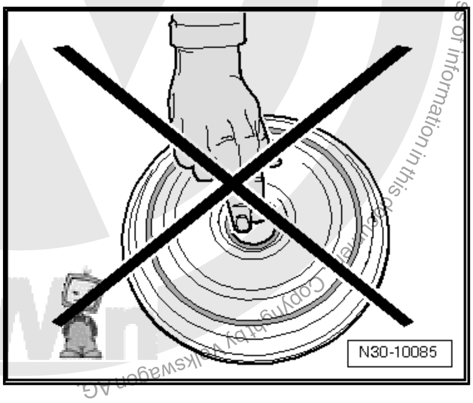


2.4.1 Covers that are Delivered without Bushings

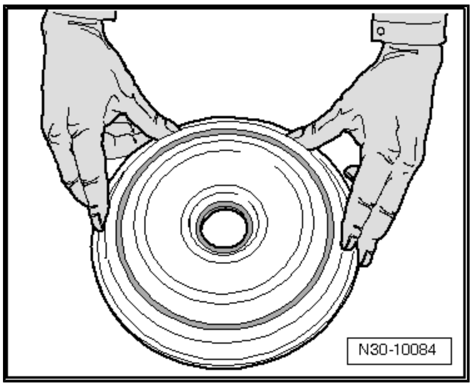
Always replace the cover and the lock ring. Never use a hammer to install the cover and never lubricate the center seal or touch it.

Caution

Do not touch the hole in the center of a new cover. The cover must also not be lubricated or come into contact with any other substances in that area. Leaks will develop.



– Only handle the cover as shown in this illustration!



Special tools and workshop equipment required

- Clutch Cover Plate Guide Sleeve - T10302-

Note

Clean the Clutch Cover Plate Guide Sleeve - T10302- before using, and do not use a scratched sleeve.

The new cover must not have any oil in or around the center seal and it must be dry.

– If necessary, clean the end of the clutch shaft.

Do not apply adhesive to the inside of the cover.

– Carefully remove the adhesive if it has already been applied!

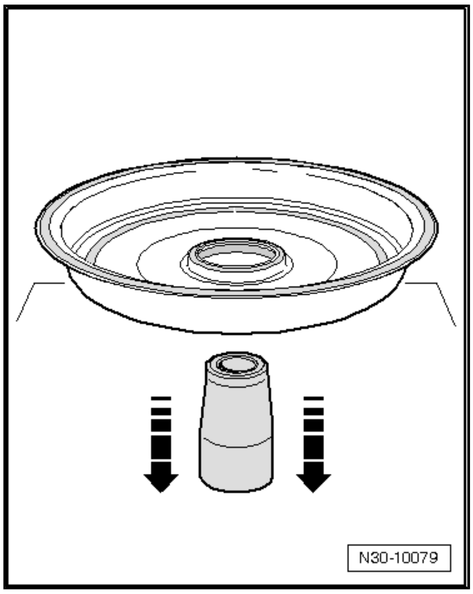
Only coat the outer edge of the seal with DSG® oil.

– Place the sleeve on a level surface.

The center seal in the new cover must now be “pre-formed”.

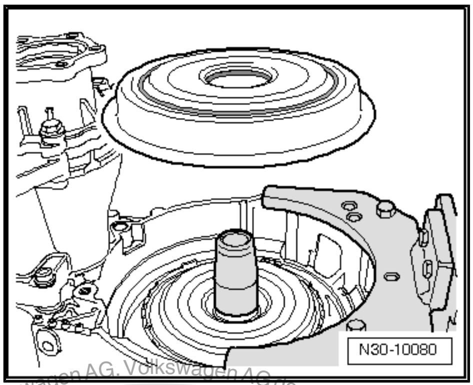
– Install the cover horizontally and evenly over the whole sleeve. This bring the sealing lip into its installed position.

– Remove the sleeve upward out of the cover and place it on the end of the clutch shaft.



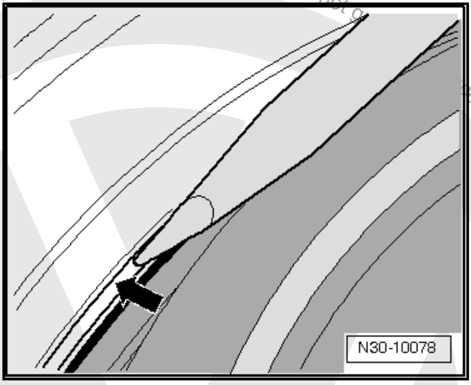
– Guide the cover horizontally over the sleeve and press it evenly onto its seat.

> **Caution**
>
> *Use caution when handling. If the cover is hit in any way, leakage will definitely occur.*



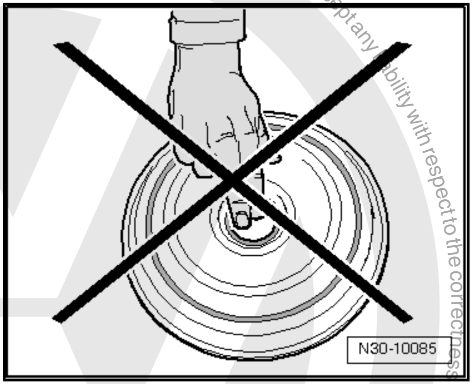
The cover can be pried out of its seat using a screwdriver to install the new lock ring.

– Install the new lock ring.



2.4.2 Covers that are Delivered with Bushings

Always replace the cover and the lock ring. Never use a hammer to install the cover and never lubricate the center seal or touch it.



Caution

Do not touch the hole in the center in a new cover. The cover must not be touched inside the hole, lubricated or come into contact with any other substances in that area. Leaks will develop.

Do Not Remove the Bushing!

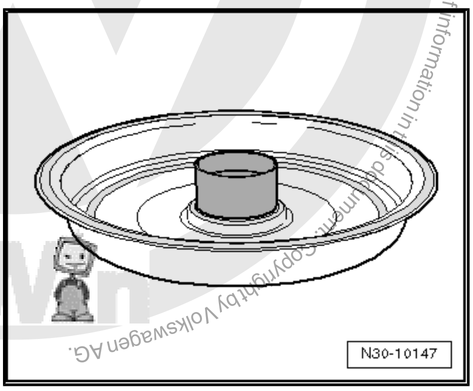
The new cover must not have any oil in or around the center seal and it must be dry.

– If necessary, clean the end of the clutch shaft.

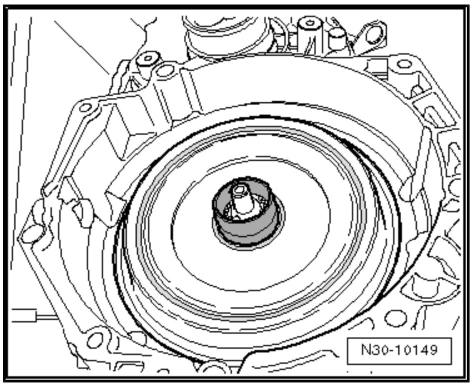
Do not apply adhesive to the inside of the cover.

– Carefully remove the adhesive if it has already been applied!

Only coat the outer edge of the seal with DSG® oil.



– Insert the clutch end cover and socket.

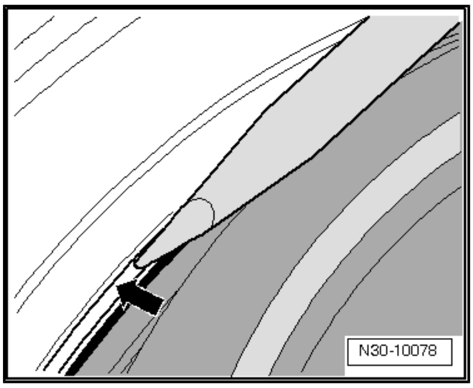


Caution

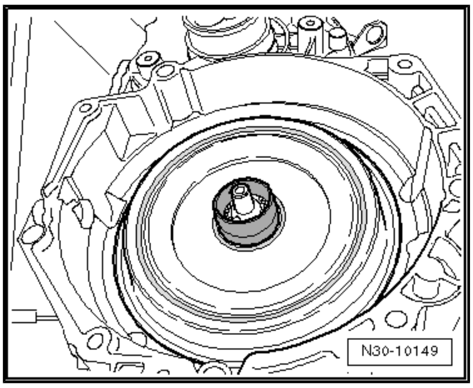
Use caution when handling. If the cover is hit in any way, leakage will definitely occur.

The cover can be pried out of its seat using a screwdriver to install the new lock clip.

– Install the new lock ring.



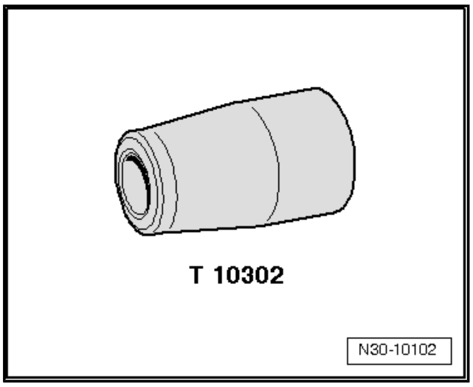
- Only remove the bushing once the lock ring is installed.
- Install the transmission. Refer to ⇒ “5.23 Transmission, Installing”, page 131 .
- Fill the transmission with oil. Refer to ⇒ “1.3 DSG® Oil, Draining and Filling”, page 30 .
- After installing the transmission, perform the `basic setting` using the `Guided Functions`. Refer to Vehicle Diagnostic Tester



3 Special Tools

Special tools and workshop equipment required

- Clutch Cover Plate Guide Sleeve - T10302-



- Not illustrated:
- Clutch Retaining Bar - T10303-
- Engine and Transmission Holder - VAS6095-
- Holding Fixture - VW313-
- Dial Gauge Holder - VW387-

34 – Controls, Housing

1 General Information

⇒ “1.1 Modifying the Adapter for Oil Filling VAS6262A ”, page 28

⇒ “1.2 Transmission Oil Level, Checking and Filling”, page 28

⇒ “1.3 DSG® Oil, Draining and Filling”, page 30

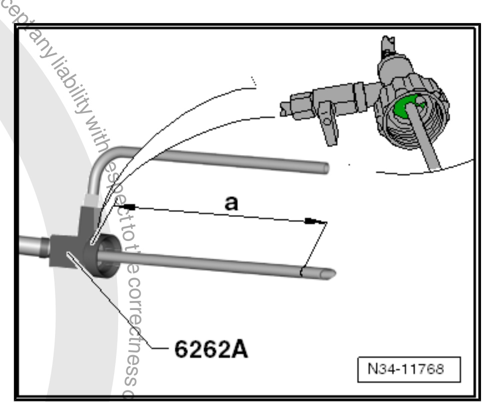
1.1 Modifying the Adapter for Oil Filling - VAS6262A-

Note the following information:

- Regarding the repair manual. Refer to ⇒ “1.7 General Repair Information”, page 2 .
- It may be necessary to shorten the pipe on the Adapter for Oil Filling - VAS6262A- .

Shortening the Pipe on the Adapter for Oil Filling - VAS6262A- :

– Shorten the pipe to dimension -a-. This assures the pipe on the Adapter for Oil Filling - VAS6262A- will not touch the bottom of some oil containers.

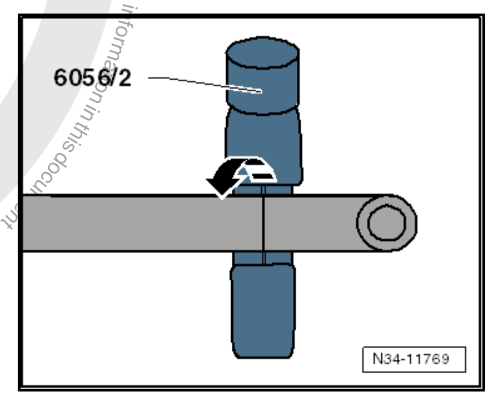


-a- = 210 mm

Note

Dimension -a- is measured starting from the green surface in the cap on the Adapter for Oil Filling - VAS6262A- .

– Make a mark on the pipe at dimension -a-, and cut it using the Brake Line Tool Kit - Pipe Cutter - VAS6056/2- .



1.2 Transmission Oil Level, Checking and Filling

Use DSG® Oil as a Replacement Part. Refer to the Parts Catalog.

Special tools and workshop equipment required

- Used Oil Collection And Extraction Unit - SMN372500-
- Adapter for Oil Filling - VAS6262A-
- Vehicle Diagnosis Tester

Requirements

- ♦ The vehicle is level and all hoist supports are at the same height.
- ♦ The noise insulation has been removed.
- ♦ The Vehicle Diagnostic Tester is connected
- ♦ The oil should not be warmer than 45 °C (113 °F) when starting the procedure.
- ♦ Test temperature: 35 to 45 °C (95 to 113 °F).

Checking

- – Connect the Vehicle Diagnostic Tester and identify the vehicle using `Guided Functions`.
- – Select `DSG transmission`.
- – Select `Check Fluid Level`.

Note

Allow the transmission to cool down if the oil temperature is higher than 45 °C (113 °F).

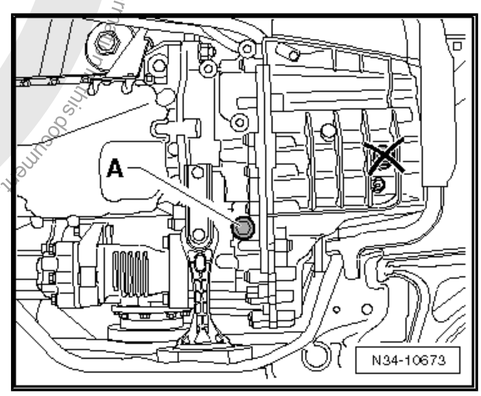
The engine is idling and the selector lever is in the “P” position.

- – Remove the drain plug.

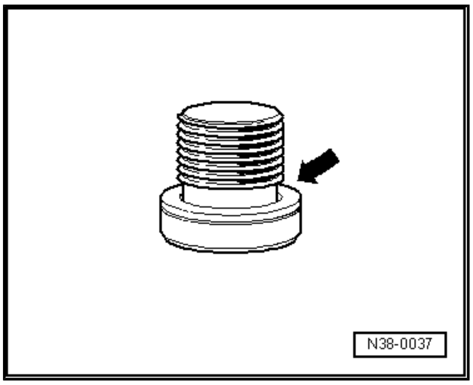
Up to transmission production date “September 20, 2004”, transmissions with two plugs were installed.

It is important to not switch the plugs. Remove the plug -A- near the pendulum support only.

Transmissions Installed After September 20, 2004, Have Only One Plug -A-.



- – Always replace the seal on the drain plug -arrow-.

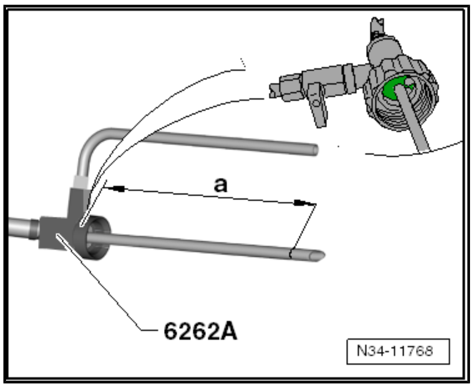


Note

Even if the transmission fluid level is too low, at first a small amount of transmission fluid will flow out of the overflow tube, because it fills during operation.

- – Allow the excess oil to drain.
- – Install the drain plug with a new seal as soon as all the oil has drained out (it starts to drip).
- – If no oil comes out, then fill it.

Adding

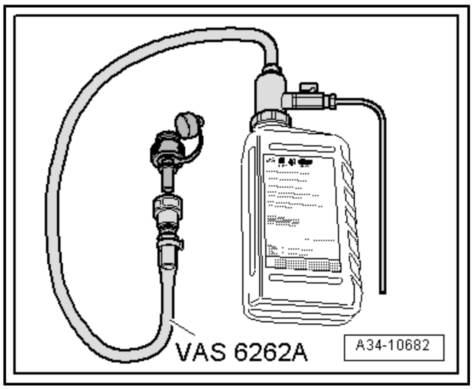


– Measure the length of the pipe (dimension -a-) before installing the Adapter for Oil Filling - VAS6262A- onto the bottle, shorten the pipe if necessary. Refer to ⇒ page 28 .

-a- = 210 mm

Note

Dimension -a- is measured starting from the green surface in the cap on the Adapter for Oil Filling - VAS6262A- .



– Install the adapter from the Adapter for Oil Filling - VAS6262A- into the plug hole hand tight.

Shake the bottle before opening.

– Fill with 1 liter (1.05 quart) of oil.

– Connect the Adapter for Oil Filling - VAS6262A- to the quick release coupling on the adapter.

If Oil Flows out of the Adapter Hole:

The oil must not be topped off.

– Let the excess oil drain.

– As soon as the oil has run out (it begins to drip), remove the Adapter for Oil Filling - VAS6262A- and install the plug with a new seal.

If No Oil Flows out of the Hole:

– Add another liter (1.05 quart) of oil.

WARNING

Too little or too much oil will impair the transmission.

Tightening Specification

Plug: 45 Nm

1.3 DSG® Oil, Draining and Filling

Use DSG® Oil as a Replacement Part. Refer to the Parts Catalog.

Short Description

First, the oil temperature is read out. If it is higher than 50 °C (122 °F), then allow the transmission cool down.

Turn off the engine, remove the overflow tube and drain the oil. Install the overflow tube and overfill the oil.

Start the engine and drain any excess oil until the oil level has reached the overflow tube.

Special tools and workshop equipment required

- Used Oil Collection And Extraction Unit - SMN372500-
- Adapter for Oil Filling - VAS6262A-
- Vehicle Diagnosis Tester

Requirements

- The engine is off.

- ♦ The vehicle is level and all hoist supports are at the same height.
- ♦ The noise insulation is removed if necessary
- ♦ The selector level is in the “ P” position.
- ♦ The Vehicle Diagnostic Tester is connected
- ♦ The oil should not be warmer than 45 °C (113 °F) when starting the procedure.

Draining

- – Follow the rules of cleanliness when working on the transmission.
- – Only use the oil for the DSG® transmission that is available as a replacement part. Other oils can cause malfunctions or transmission failure.

WARNING

Risk of injury due to hot oil.

- – Connect the Vehicle Diagnostic Tester and identify the vehicle using `Guided Functions`.
- – Select `DSG transmission`.
- – Select `Check Fluid Level`.

Note

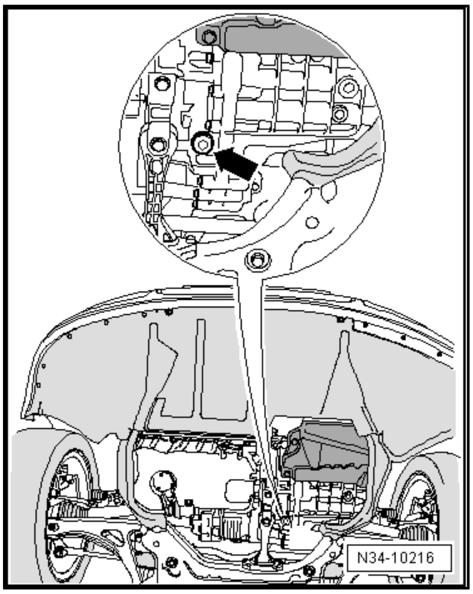
Allow the transmission to cool down if the oil temperature is higher than 45 °C (113 °F).

WARNING

Do not start the engine if there is no oil in the transmission.

- – Engine is off - do not start!
- – Remove the plug - arrow- near the pendulum support.

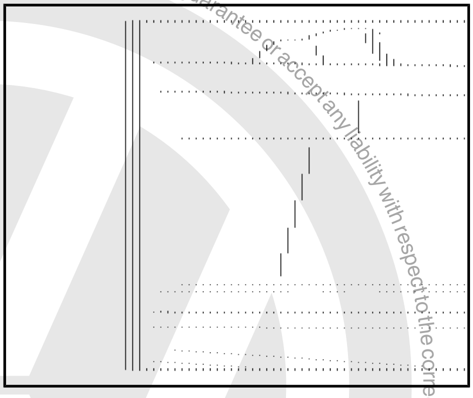
A “ black plastic overflow tube” is located in this hole (with a 8 mm hex socket head). Its length determines the oil level in the transmission.



- Remove the overflow tube -arrow- and allow the oil to drain.

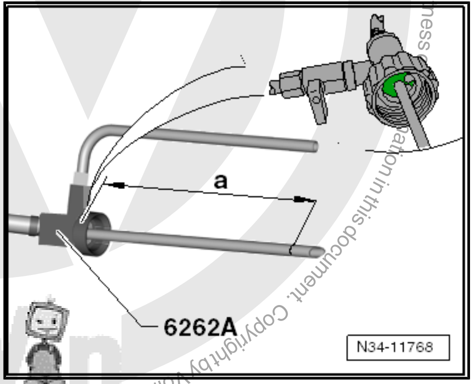
About 5 liters (5.28 quarts) of oil will drain.

- Reinstall the overflow tube and tighten it to 3 Nm.



- Measure the length of the pipe, dimension - a- before installing the Adapter for Oil Filling - VAS6262A- to the oil bottle and shorten the pipe as necessary. Refer to ⇒ page 28 .

- a- = 210 mm

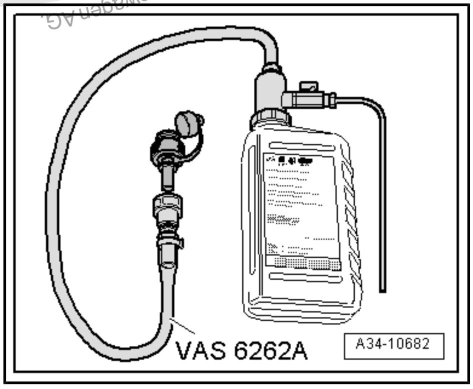


Note

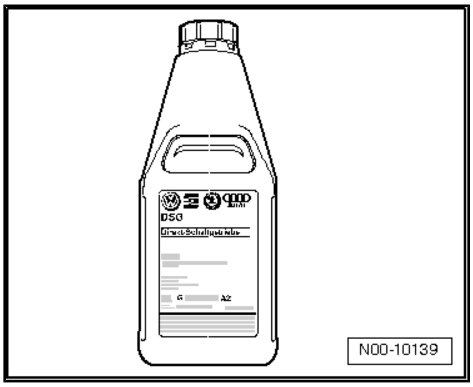
Dimension - a- is measured starting from the green surface in the cap on the Adapter for Oil Filling - VAS6262A- .

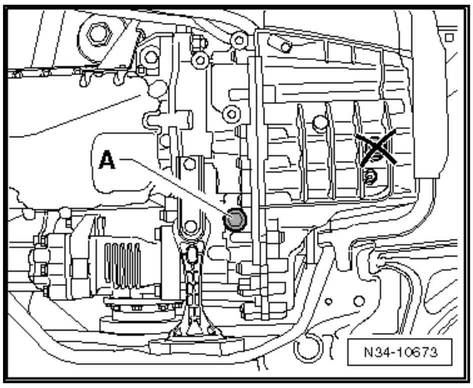
Filling

- Install the adapter from the Adapter for Oil Filling - VAS6262A- into the plug hole hand tight.



- Shake the bottles before opening.
- Fill with 5.5 liters (5.81 quarts) of DSG® oil.
- To change containers, close the shut off lever or hold the Adapter for Oil Filling - VAS6262A- higher than the transmission.





- Reinstall and tighten the plug -A- hand tight.
- Start the engine.
- Press the brake pedal and select each selector lever position for approximately 3 seconds, then move the selector lever back into the “ P” position.
- Do not turn off the engine.
- Check the oil level and fill, as necessary.

2 Description and Operation

⇒ “2.1 DSG® Electric/Electronic Components and Locations”, page 34

⇒ “2.2 Selector Lever, Manual Release”, page 35

⇒ “2.3 Selector Lever Cable, Adjusting”, page 35

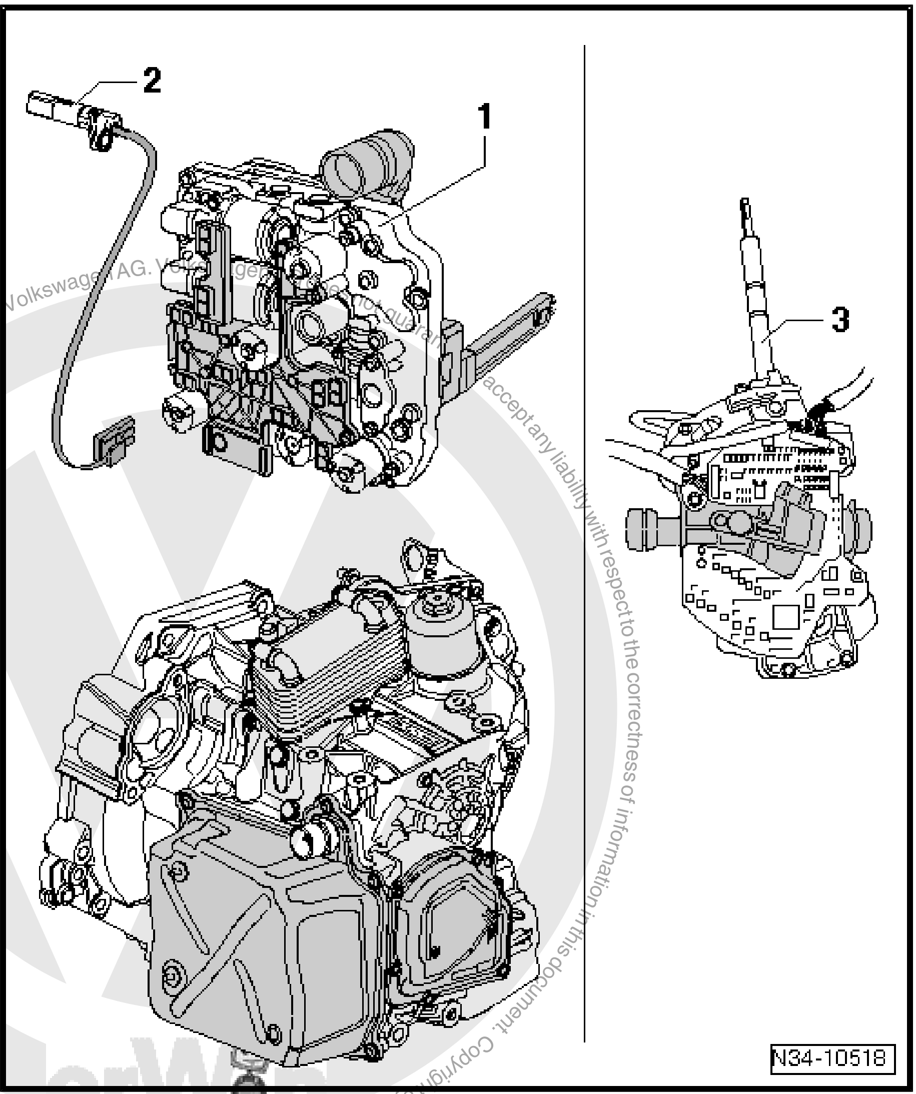
⇒ “2.4 Overview - Selector Mechanism, through 02/2009”, page 36

⇒ “2.5 Overview - Selector Mechanism, from 03/2009”, page 38

2.1 DSG® Electric/Electronic Components and Locations

The electric components are located in the transmission.

Only the selector lever sensor system control module and the shift lock solenoid are located on the selector lever.



1 - DSG Transmission Mechatronic - J743-

- ❑ Behind the large metal cover.
- ❑ Removing and installing. Refer to one of the following:

  With the transmission installed. Refer to ⇒ “5.9 DSG Transmission Mechatronic J743 , Transmission Installed”, page 69 .

  With the transmission removed. Refer to ⇒ “5.10 DSG Transmission Mechatronic J743 , Transmission Removed”, page 76 .

2 - Transmission Input Speed Sensor - G182- and Clutch Oil Temperature Sensor - G509-

- ❑ The DSG® transmission Mechatronic must be removed first, before the sensor can be removed. Refer to ⇒ “5.9 DSG Transmission Mechatronic J743 , Transmission Installed”, page 69.

3 - Selector Lever - E313-

2.2 Selector Lever, Manual Release

Do Not Remove the Handle.

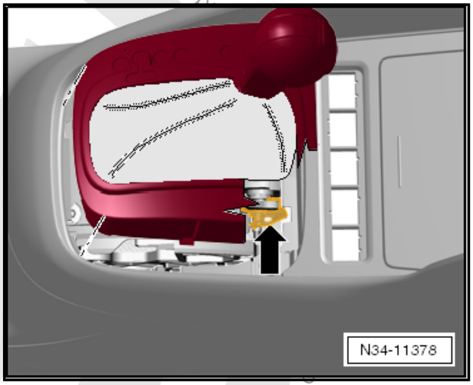
– Press the brake or set the parking brake.

In Case of an Emergency.

– Hold the leather boot and remove the trim.

Vehicles through 02.2009:

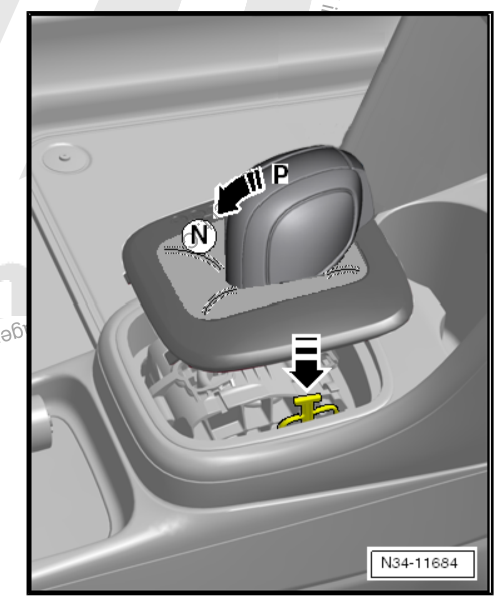
– Press in -arrow- on the yellow plastic piece from the right to the left.



Vehicles from 03.2009:

– Unclip the shift cover and move it to the side.

– Push down -arrow- on the yellow plastic piece.



2.3 Selector Lever Cable, Adjusting

Special tools and workshop equipment required

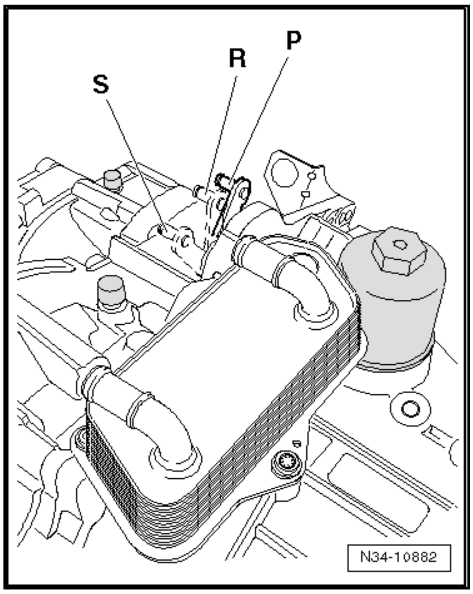
- Torque Wrench 1331 5-50Nm - VAG1331-

The Selector Lever Cable Must Always Be Adjusted If:

- The selector lever cable was removed from the transmission.
- The engine and/or transmission were removed and installed.
- Parts of the engine and/or transmission mounts were removed and installed.
- The cable itself or the selector mechanism was removed and installed.
- The engine/transmission positions changed, for example, were installed free of tension.

Adjusting

– Move the selector lever into the “P” position.



Move the Lever on the Transmission into the “P” Position.

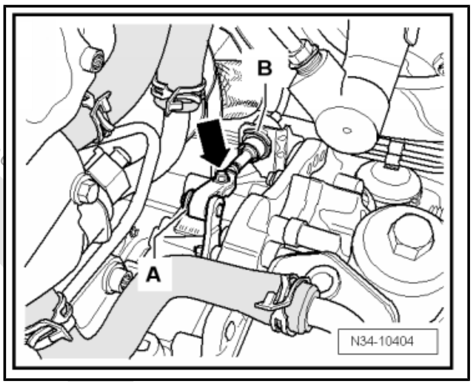
The lever on the transmission must be pushed all the way to the rear.

- Pull the lever forward.
- Push the lever to the rear

“P” is in the Second Detent.

Note

- ♦ *Make sure the transmission is actually in the “P” position (parking lock is engaged) if raising the vehicle. It must not be possible to turn the front wheels.*
- ♦ *The transmission is also in the “P” position if the vehicle does not move with wheels spinning freely.*



- Install the cable with a loose adjustment bolt -arrow- and the new lock washers -A and B-.
- Lightly tap the button in the handle forward and backward and make sure to keep the handle in the position “P” position.

This locates the cable core in its optimal position.

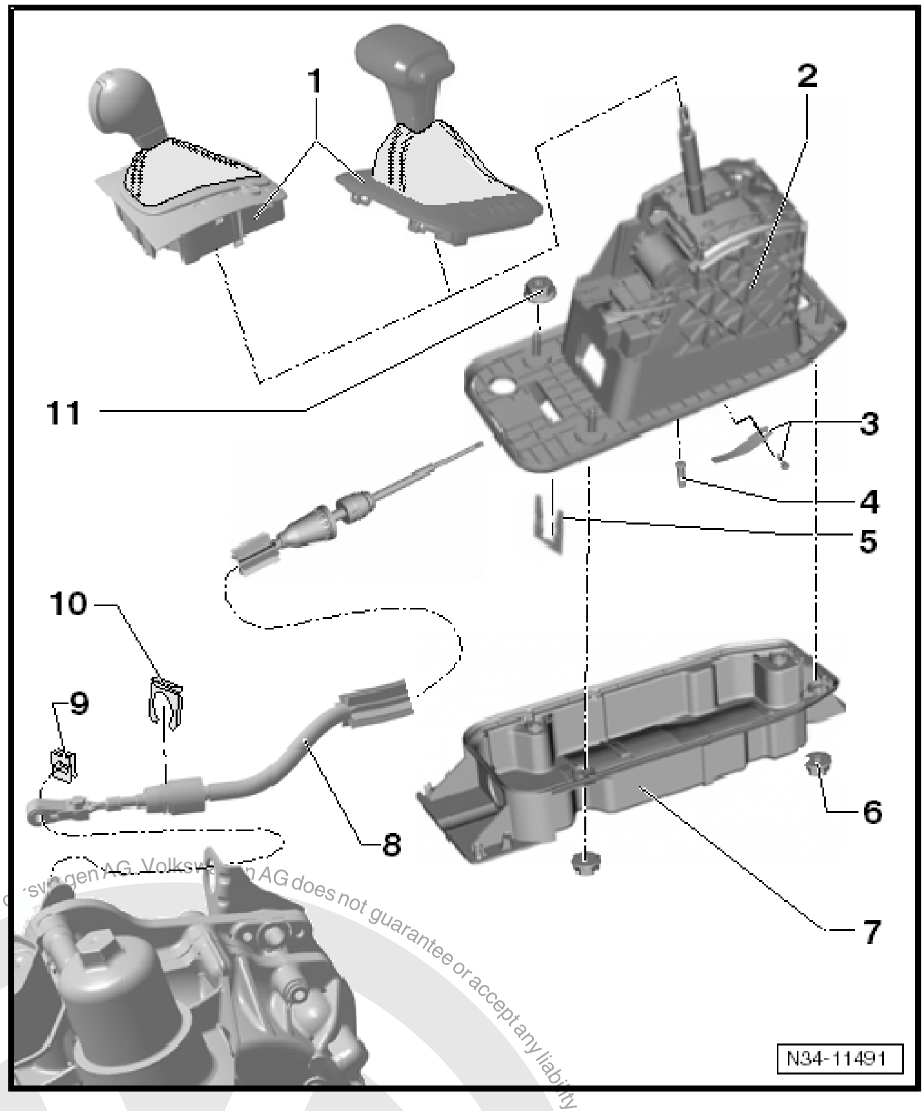
- Tighten the adjustment bolt to 13 Nm.

This ends the adjustment.

2.4 Overview - Selector Mechanism, through 02/2009

WARNING

Move the selector lever into the “P” position and set the parking brake before working with the engine running.



1 - Selector Handle with Cover

- ☐ Do not remove the handle unnecessarily. For emergency release, only the cover must be removed. Refer to ⇒ “2.2 Selector Lever, Manual Release”, page 35 .
- ☐ Button in the side: Pull the button out of the handle just far enough until there is a small gap between the handle and the button. The button will lock in this position once it is released. Prevent the button from being pressed in using a cable tie or wire.
- ☐ Button in the front: do not push the button in. Should the button get pushed in, then bring it back to the installed position. Refer to ⇒ “5.2 Handle Button, Moving Into the Installed Position”, page 51 .

2 - Selector Lever Mechanism

- ☐ With the shift lock solenoid.
- ☐ Emergency release. Refer to ⇒ “2.2 Selector Lever, Manual Release”, page 35 .
- ☐ Removing and installing:

– Remove the center bracket.

– Remove the cable from the transmission and from the selector mechanism. Refer to ⇒ “5.3 Selector Lever Cable, through 02/2009”, page 53 .

– If necessary: Disconnect or remove the exhaust system components. Refer to ⇒ Engine Mechanical, Fuel Injection and Ignition; Rep. Gr. 26 .

– Remove the heat shield under the vehicle.

– Adjust the selector lever cable after installing. Refer to ⇒ “2.3 Selector Lever Cable, Adjusting”, page 35 .

3 - Bolt with Spring

- ☐ 3 Nm

4 - Pin

- ☐ Removing. Refer to ⇒ “5.3 Selector Lever Cable, through 02/2009”, page 53 .
- ☐ Do not lubricate.

5 - Retainer Plate

- ☐ Always replace after removing.

6 - Nut

- ☐ 9 Nm.

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erWin

- ❑ Quantity: 4

7 - Selector Housing

- ❑ With seal.

8 - Selector Lever Cable

- ❑ Do not grease the cable.
- ❑ Removing and installing. Refer to ⇒ “5.3 Selector Lever Cable, through 02/2009”, page 53 .
- ❑ Checking. Refer to ⇒ “4.1 Selector Lever Cable, Checking”, page 47 .
- ❑ Adjusting. Refer to ⇒ “2.3 Selector Lever Cable, Adjusting”, page 35 .

9 - Lock Washer

- ❑ Always replace after removing

10 - Lock Washer

- ❑ Always replace after removing.

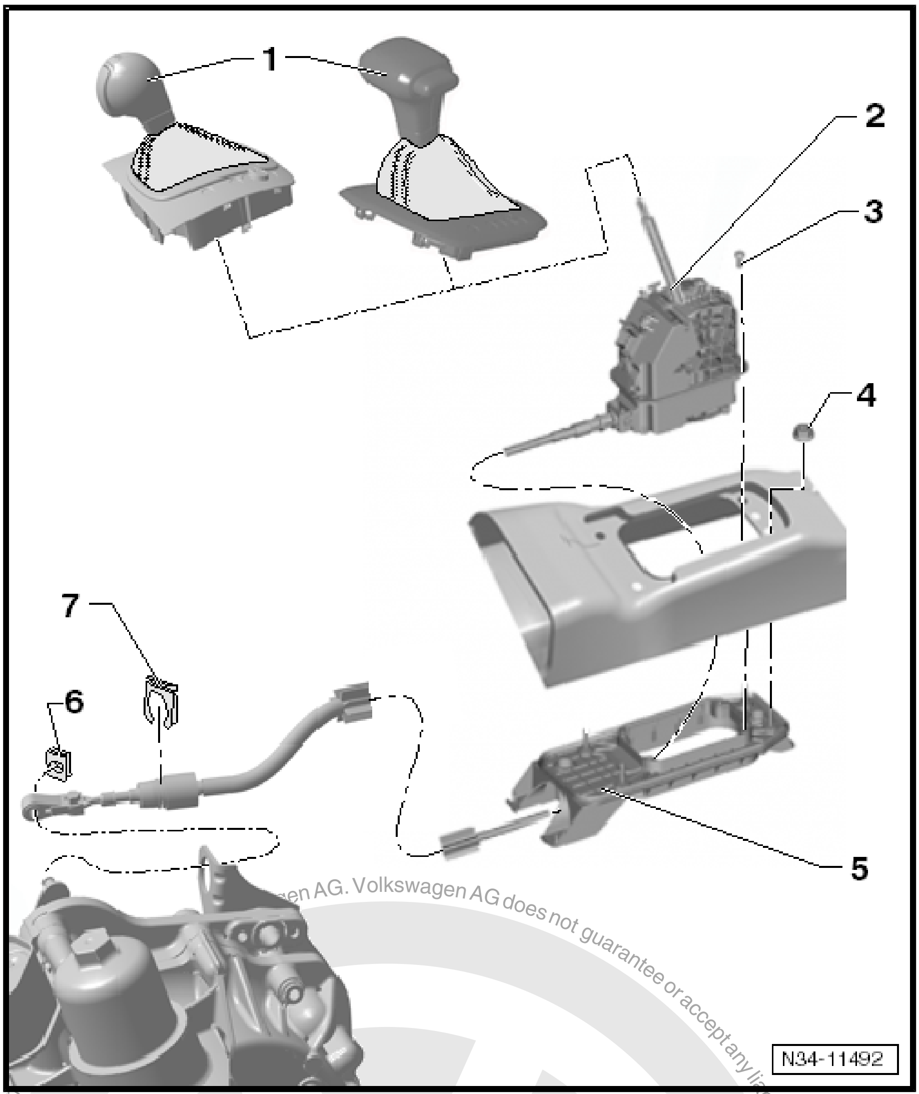
11 - Nut

- ❑ 8 Nm.
- ❑ Quantity: 4

2.5 Overview - Selector Mechanism, from 03/2009

⚠ **WARNING**

Move the selector lever into the “P” position and set the parking brake before working with the engine running.



1 - Selector Handle with Cover

- ☐ Do not remove the handle unnecessarily. For emergency release, only cover must be removed. Refer to ⇒ “2.2 Selector Lever, Manual Release”, page 35 .
- ☐ Button on the side: Pull the button out of the handle just far enough until there is a small gap between the handle and the button. The button will lock in this position once it is released. Prevent the button from being pressed in using a cable tie or wire.
- ☐ Button in the front: The button is locked in its installed position when the handle is removed.
- ☐ Removing and installing. Refer to ⇒ “5.1 Selector Lever Handle”, page 49 .

2 - Selector Lever and Selector Mechanism with Selector Lever Cable

- ☐ With the shift lock solenoid.
- ☐ Do not grease cable.
- ☐ Removing and installing. Refer to the following:

  ⇒ “5.4 Selector Mechanism with Housing, from 03/2009”, page 60 .

  ⇒ “5.5 Selector Mechanism without Housing, from 03/2009”, page 62 .
- ☐ Checking. Refer to ⇒ “4.1 Selector Lever Cable, Checking”, page 47 .
- ☐ Adjusting. Refer to ⇒ “2.3 Selector Lever Cable, Adjusting”, page 35 .

3 - Bolt

- ☐ 8 Nm.

4 - Nut

- ☐ 8 Nm.
- ☐ Quantity: 4

5 - Selector Housing

6 - Lock Washer

- ☐ Always replace after removing.

7 - Lock Washer

- ☐ Always replace after removing.

3 Specifications

⇒ “3.1 Fastener Tightening Specifications”, page 40

GTI (from 2010) with a 2.0L TFSI engine, Passat and CC
⇒ “3.2 Transmission to Engine Tightening Specifications”, page 41

GTI (2006-2009) and Eos with a 2.0L TFSI engine
⇒ “3.3 Transmission to Engine Tightening Specifications”, page 42

Golf (from 2010) with a 2.0L TDI engine
⇒ “3.4 Transmission to Engine Tightening Specifications”, page 43

Eos with a 3.2L engine
⇒ “3.5 Transmission to Engine Tightening Specifications”, page 44

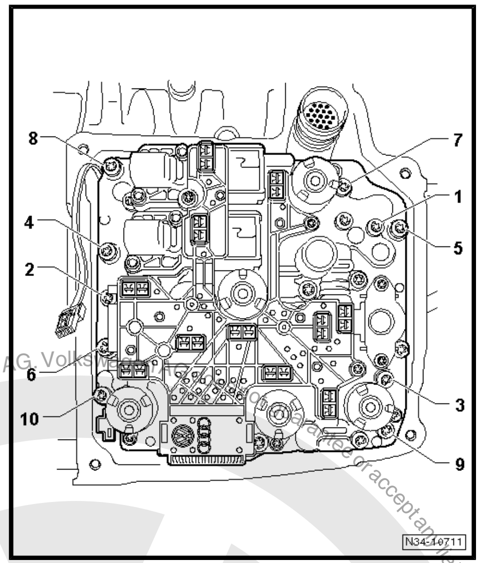
R32 (2008)
⇒ “3.6 Transmission to Engine Tightening Specifications”, page 45

3.1 Fastener Tightening Specifications

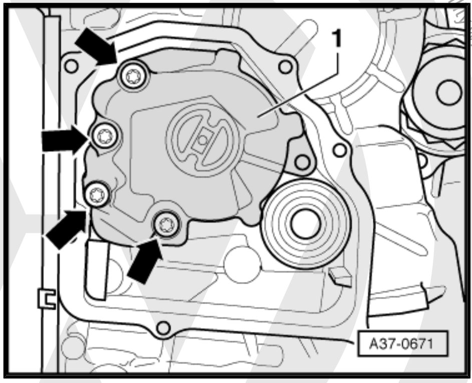
Mechatronic Unit Bolt Tightening Sequence and Specification

– Install new bolts -1 through 10- hand tight.

– Tighten the bolts in the specified sequence to 5 Nm + an additional 90° (1/4) turn.



Oil Pump Bolt, Variety and Tightening Specification



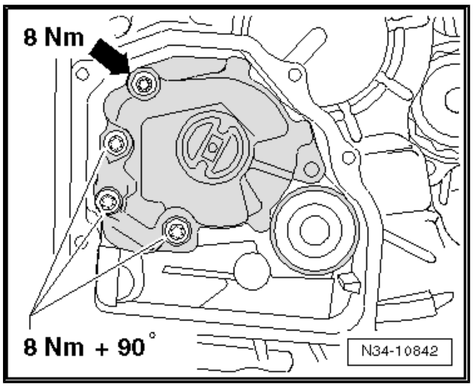
All 4 bolts with a flat heads

– Tightening specification: 5 Nm + an additional 90° (1/4) turn.

3 bolts have a flat head, the upper bolt is countersunk

Tightening specification:

- Countersunk bolt: 8 Nm without an additional torque angle, tighten using Wrench - Pump/Injector Long Reach - T10054- .
- Flat head bolts: 8 Nm + an additional 90° (1/4) turn



Bevel Box to Transmission Bracket Bolt Tightening Sequence and Specification (R32 models only)

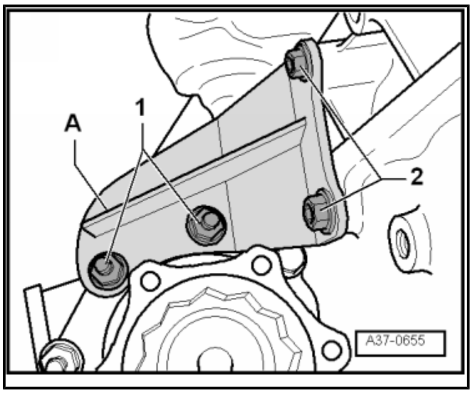
– Install the bolts -1 and 2- by hand.

– Follow the installation sequence:

1 - Tighten the bolts -1- first to 3 Nm.

2 - Tighten the bolts -2- to 35 Nm.

3 - Then, tighten the bolts -1- to 45 Nm.



3.2 Transmission to Engine Tightening Specifications

For the following:

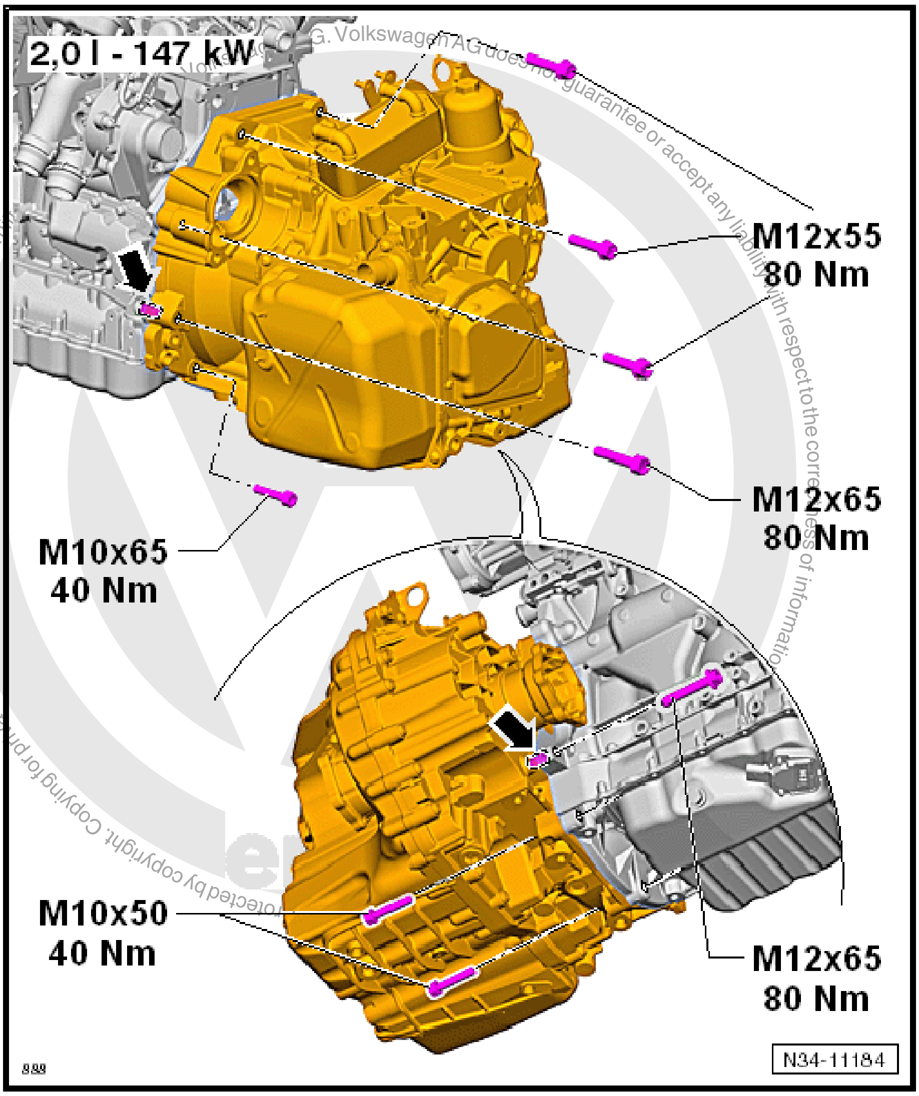
- GTI (from 2010) with a 2.0 L TFSI engine
- Passat
- CC

M12 Bolts - 80 Nm

- ☐ If Insert Tool - 18 mm - T10179- is used: 65 Nm.

M10 Bolts - 40 Nm

Arrows - Alignment Sleeves

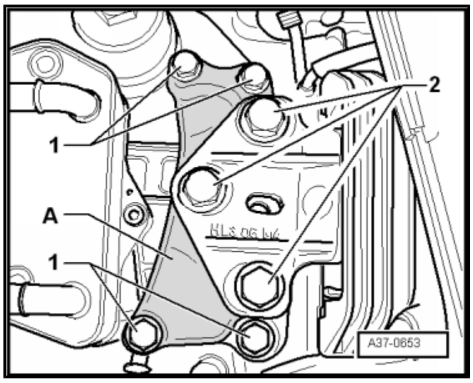


– Replace all the bolts for the transmission mount.

– First, install all the new bolts by hand.

– Then tighten the transmission mount bracket -A- to transmission bolts -1- to 40 Nm + an additional 90° (1/4) turn.

– When tightening the bolts -2-, the bracket can be pried into position using a screwdriver. Tightening specification for the bolts -2-: 60 Nm + an additional 90º (1/4) turn.



Starter to transmission. Refer to ⇒ Electrical Equipment; Rep. Gr. 27 ; Specifications .

The subframe bolts must be replaced.

Subframe to body. Refer to ⇒ Suspension, Wheels, Steering; Rep. Gr. 40 ; Specifications .

3.3 Transmission to Engine Tightening Specifications

For the following:

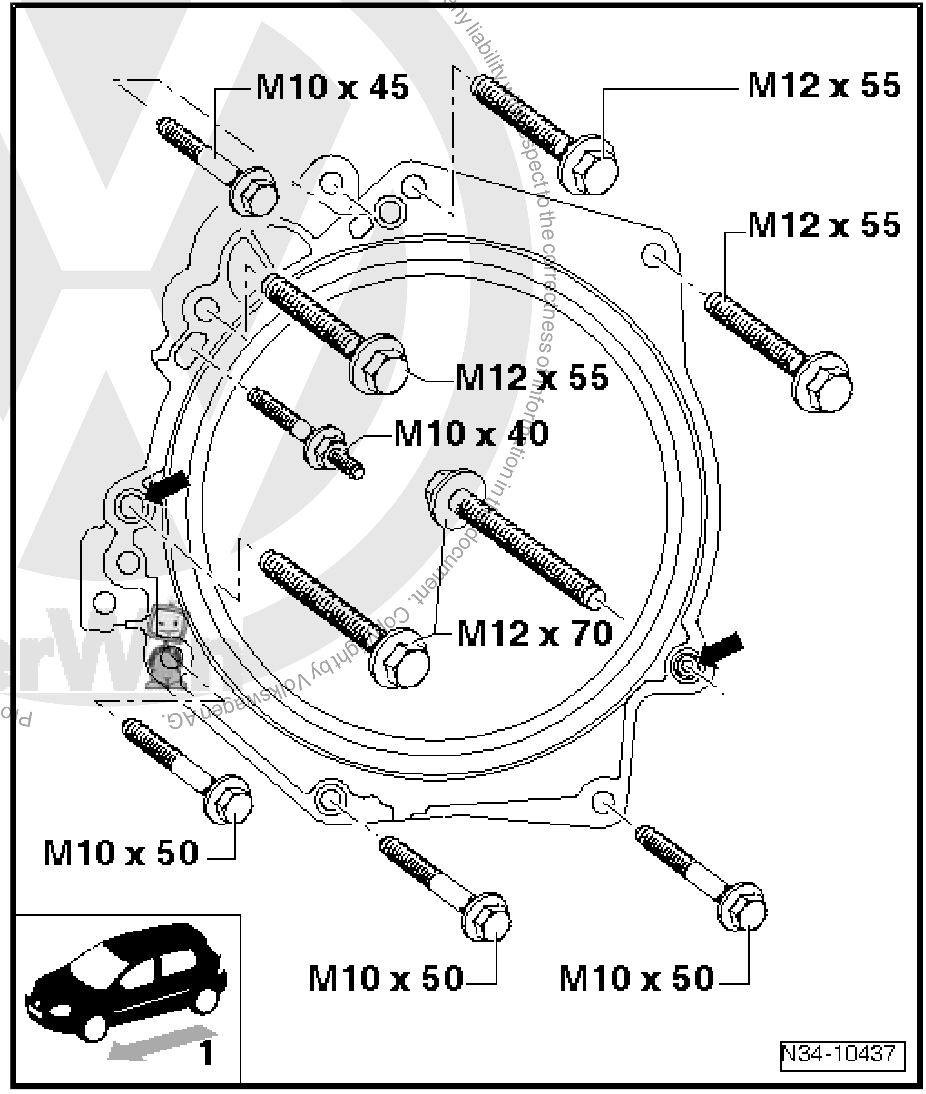
- GTI (2006-2009) with a 2.0 L TFSI engine
- Eos with a 2.0 L TFSI engine

M12 Bolts - 80 Nm

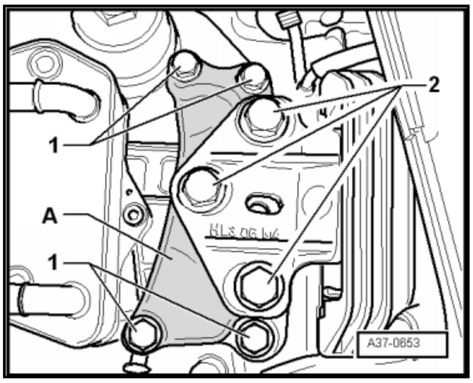
- ☐ If Insert Tool - 18 mm - T10179- is used: 65 Nm.

M10 Bolts - 40 Nm

Arrows - Alignment Sleeves



- Replace all the bolts for the transmission mount.
- First, install all the new bolts by hand.
- Then tighten the transmission mount bracket -A- to transmission bolts -1- to 40 Nm + an additional 90° (1/4) turn.
- When tightening the bolts -2-, the bracket can be pried into position with a screwdriver. Tightening specification for the bolts -2-: 60 Nm + an additional 90º (1/4) turn.



Starter to transmission. Refer to ⇒ Electrical Equipment; Rep. Gr. 27 ; Specifications .

The subframe bolts must be replaced.

Subframe to body. Refer to ⇒ Suspension, Wheels, Steering; Rep. Gr. 40 ; Specifications .

3.4 Transmission to Engine Tightening Specifications

For the following:

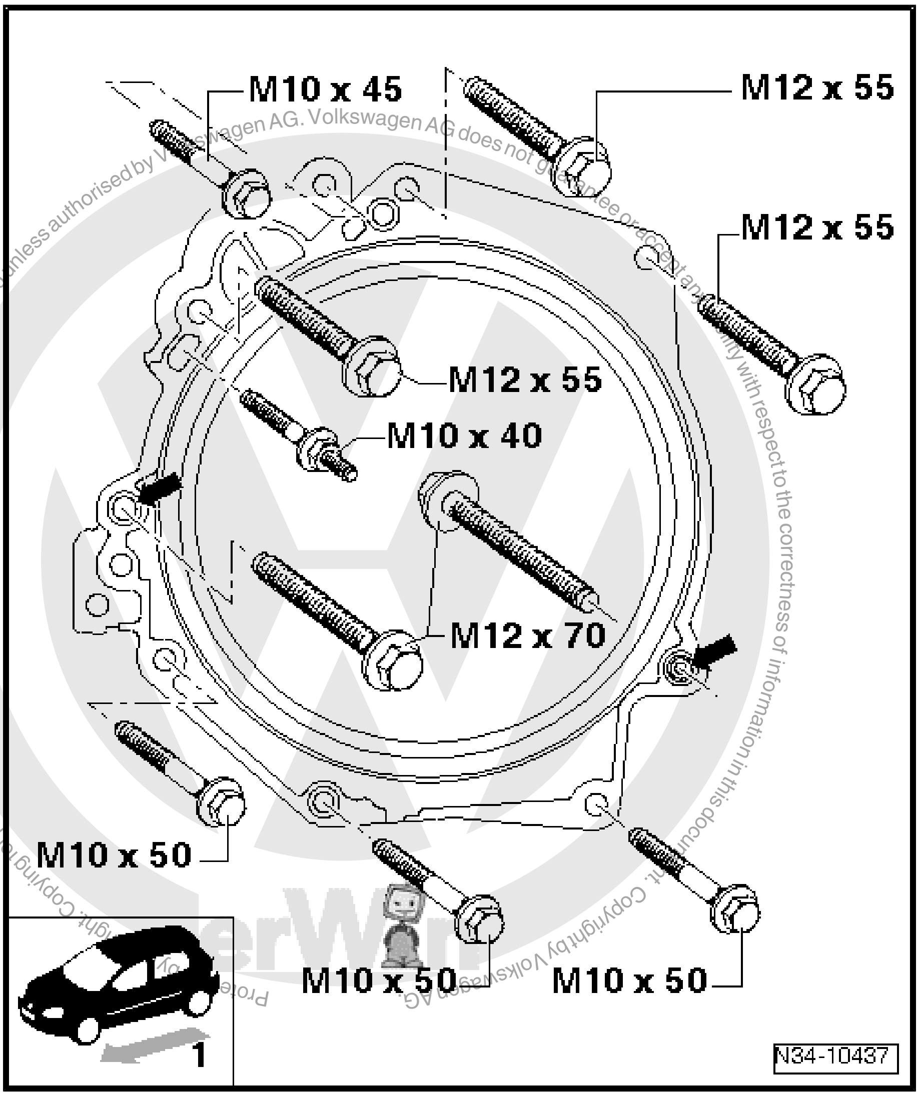
Golf (from 2010) with a 2.0L TDI engine

M12 Bolts - 80 Nm

- ☐ If the Insert Tool - 18 mm - T10179- is used: 65 Nm.

M10 Bolts - 40 Nm

Arrows - Alignment Sleeves

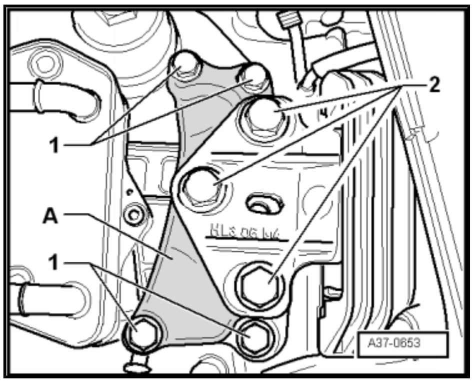


– Replace all the bolts for the transmission mount.

– First, install all the new bolts by hand.

– Then tighten the transmission mount bracket -A- to transmission bolts -1- to 40 Nm + an additional 90° (1/4) turn.

– When tightening the bolts -2-, the bracket can be pried into position with a screwdriver. Tightening specification for the bolts -2-: 60 Nm + an additional 90° (1/4) turn.



Starter to transmission. Refer to ⇒ Electrical Equipment; Rep. Gr. 27 ; Specifications .

The subframe bolt must be replaced.

Subframe to body. Refer to ⇒ Suspension, Wheels, Steering; Rep. Gr. 40 ; Specifications .

3.5 Transmission to Engine Tightening Specifications

For the following:

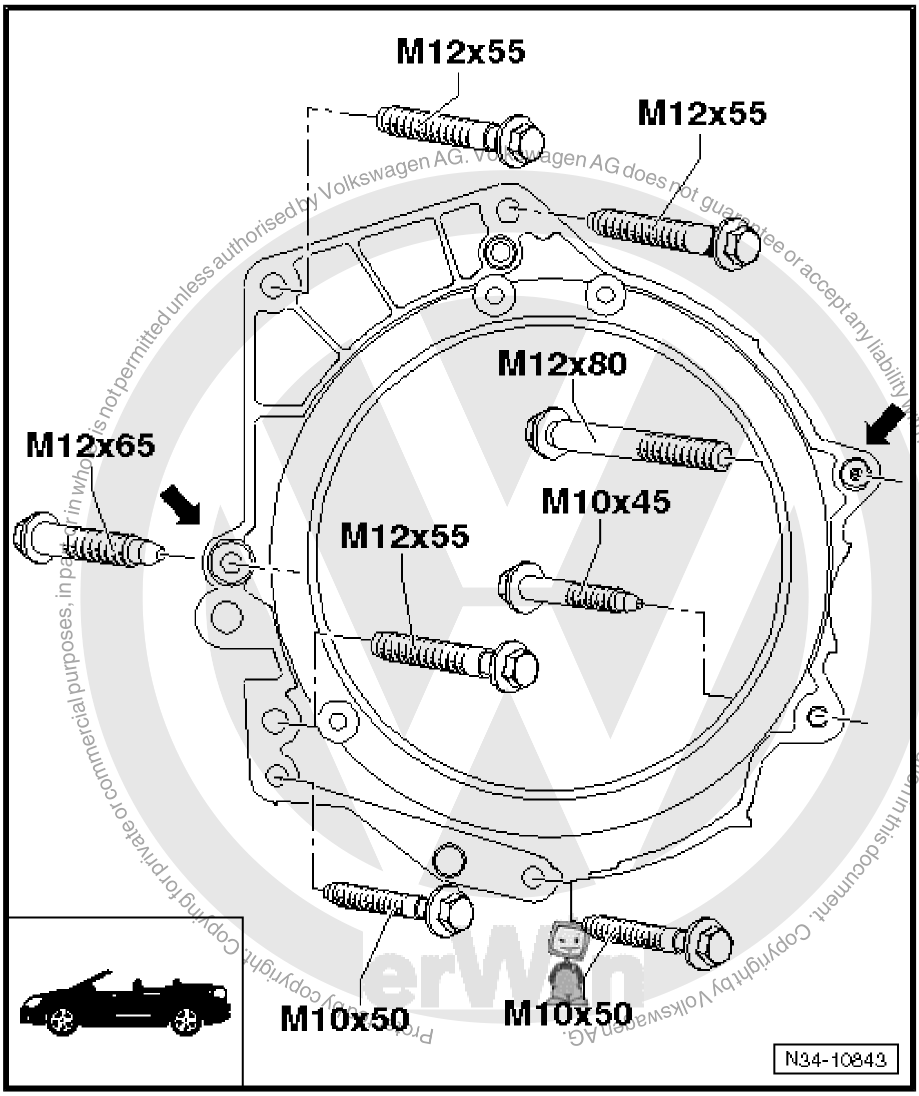
Eos with a 3.2 L engine

M12 Bolts - 80 Nm

- ❑ If the Insert Tool - 18 mm - T10179- is used: 65 Nm.

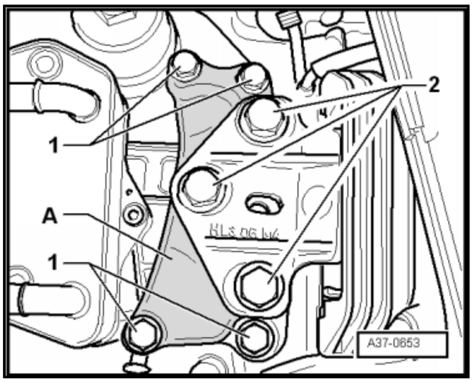
M10 Bolts - 40 Nm

Arrows - Alignment Sleeves



Drive axle heat shield	25 Nm

- – Replace all the bolts for the transmission mount.
- – First, install all the new bolts by hand.
- – Then tighten the transmission mount bracket -A- to transmission bolts -1- to 40 Nm + an additional 90° (1/4) turn.
- – When tightening the bolts -2-, the bracket can be pried into position with screwdriver. Tightening specification for the bolts -2-: 60 Nm + an additional 90º (1/4) turn.



Starter to transmission. Refer to ⇒ Electrical Equipment; Rep. Gr. 27 ; Specifications .

Subframe screws must be replaced.

Subframe to body. Refer to ⇒ Suspension, Wheels, Steering; Rep. Gr. 40 ; Specifications .

3.6 Transmission to Engine Tightening Specifications

For the following:

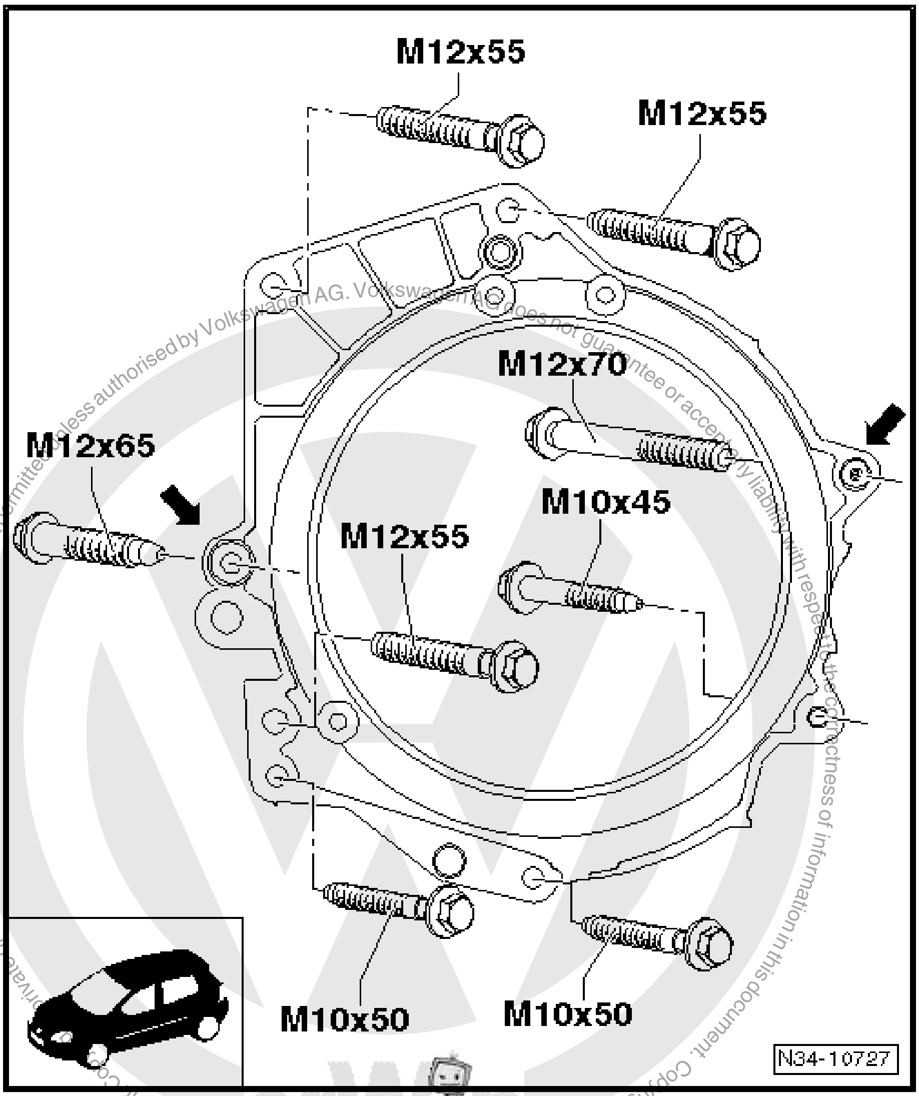
R32

M12 Bolts - 80 Nm

- ☐ If the Insert Tool - 18 mm - T10179- is used, then 65 Nm.

M10 Bolts - 40 Nm

Arrows - Alignment Sleeves



Driveshaft

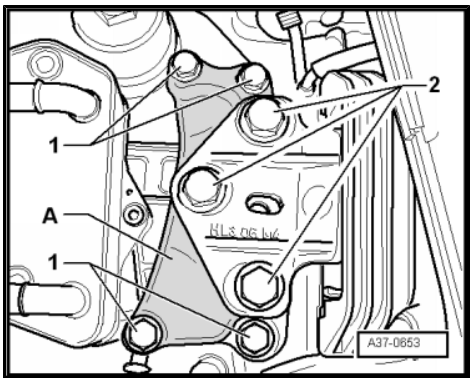
- ♦ Driveshaft heat shield to bevel box: 25 Nm
- ♦ Driveshaft to bevel box. Refer to ⇒ Rear Final Drive 0AV; Rep. Gr. 39 ; Specifications .

– Replace all the bolts for the transmission mount.

– First, install all the new bolts by hand.

– Then tighten the transmission mount bracket -A- to transmission bolts -1- to 40 Nm + an additional 90° (1/4) turn.

– When tightening the bolts -2-, the bracket can be pried into position with a screwdriver. Tightening specification for the bolts -2-: 60 Nm + an additional 90° (1/4) turn.



Starter to transmission. Refer to ⇒ Electrical Equipment; Rep. Gr. 27 ; Specifications .

The subframe bolts must be replaced.

Subframe to body. Refer to ⇒ Suspension, Wheels, Steering; Rep. Gr. 40 ; Specifications .

4 Diagnosis and Testing

⇒ “4.1 Selector Lever Cable, Checking”, page 47

⇒ “4.2 Selector Mechanism, Checking”, page 47

4.1 Selector Lever Cable, Checking

Short Description

Check the cable for ease of movement. The selector lever cable must be disconnected from the transmission in order to check it for ease of movement. Do not let the removed end touch anything.

Then the selector lever is moved and finally the cable is reinstalled at transmission.

After that, the selector lever cable must be adjusted.

Do not lubricate the cable connections.

Checking

- Move the selector lever into the “P” position.
- Remove the cable from lever on the transmission.
- Move the selector lever from “P” to “S” and back to “P” several times.

- The selector lever must move easily.

- Adjust the selector lever cable. Refer to ⇒ “2.3 Selector Lever Cable, Adjusting”, page 35 .

4.2 Selector Mechanism, Checking

Do not operate the starter when the selector lever is in the “R”, “D” or “S” positions.

If selector lever position “N” is selected at speeds greater than 5 km/h (3 mph), the shift lock solenoid must not engage and block the selector lever. The selector lever can be moved into a another gear.

For speeds below 5 km/h (3 mph) (almost a stand still) and moving the selector lever into the “N” position, the shift lock solenoid must only engage after approximately 1 second. The selector lever can be moved out of “N” only when the brake pedal is pressed.

Selector Lever in the “P” Position and the Ignition is Turned On:

- If the brake pedal is not pressed:

The selector lever is locked and cannot be shifted out of the “P” position with the button pressed. The shift lock solenoid blocks the selector lever.

- If the brake pedal is pressed:

The shift lock solenoid releases the selector lever. It is now possible to shift into a gear. Slowly move the selector lever from “P” through “S”; while doing this, check whether the selector lever display position in the instrument panel insert matches the actual selector lever position.

Selector Lever in the “N” Position and the Ignition is Turned On:

- If the brake pedal is not pressed:

The selector lever is locked and cannot be shifted out of the “P” position with the button pressed. The shift lock solenoid blocks the selector lever.

- If the brake pedal is pressed:

The shift lock solenoid releases the selector lever. It is now possible to shift into a gear.

Selector Lever in the “Tiptronic” Position:

- Move the selector lever into the Tiptronic gate:

The illuminated “D” in the cover must turn off. The “+” and “-” must turn on.

The selector lever position display in the instrument cluster must change from “P R N D S” to “6 5 4 3 2 1” when the selector lever is moved into the Tiptronic gate.

Ignition and Lights Turned On:

The appropriate symbol is being lit up in the selector mechanism cover.

Transmission Range Display:

Simultaneous lighting of all segments of the transmission range selector lever display indicates the transmission is in emergency running mode.

5 Removal and Installation

⇒ “5.1 Selector Lever Handle”, page 49

⇒ “5.2 Handle Button, Moving Into the Installed Position”, page 51

⇒ “5.3 Selector Lever Cable, through 02/2009”, page 53

⇒ “5.4 Selector Mechanism with Housing, from 03/2009”, page 60

⇒ “5.5 Selector Mechanism without Housing, from 03/2009”, page 62

⇒ “5.6 Transmission Oil Cooler”, page 64

⇒ “5.7 Oil Pump”, page 66

⇒ “5.8 Selector Shaft Lever Seal, Transmission Removed”, page 68

⇒ “5.9 DSG Transmission Mechatronic J743 , Transmission Installed”, page 69

⇒ “5.10 DSG Transmission Mechatronic J743 , Transmission Removed”, page 76

⇒ “5.11 Transmission Input Speed Sensor G182 and Clutch Oil Temperature Sensor G509 ”, page 81

⇒ “5.12 Oil Filter”, page 82

Eos with a 2.0L TFSI Engine
⇒ “5.13 Transmission, Removing”, page 83

Eos with a 3.2L Engine
⇒ “5.14 Transmission, Removing”, page 88

GTI (2006-2009) with a 2.0L TFSI Engine
⇒ “5.15 Transmission, Removing”, page 92

R32 ⇒ “5.16 Transmission, Removing”, page 96

R32 ⇒ “5.17 Bevel Box”, page 103

Golf (from 2010) with a 2.0L TFSI Engine
⇒ “5.18 Transmission, Removing”, page 107

Golf (from 2010) with a 2.0L TDI Engine
⇒ “5.19 Transmission, Removing”, page 112

Passat ⇒ “5.20 Transmission, Removing”, page 118

CC ⇒ “5.21 Transmission, Removing”, page 122

⇒ “5.22 Transmission, Transporting and Securing to the Assembly Stand”, page 130

⇒ “5.23 Transmission, Installing”, page 131

5.1 Selector Lever Handle

Short Description

There are different handles depending on the model.

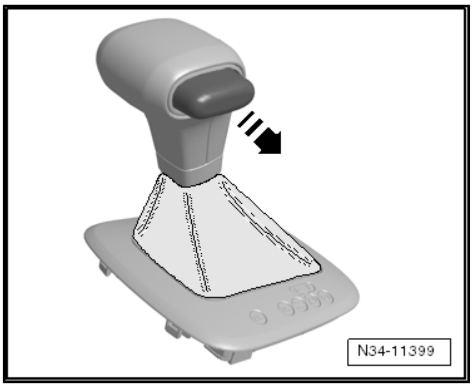
For All Handles, There Is the Possibility That the Button Can Be Pressed into the Handle. Never Install the Handle When the Button Is Pressed In.

The handle is removed together with the shift cover.

Removing

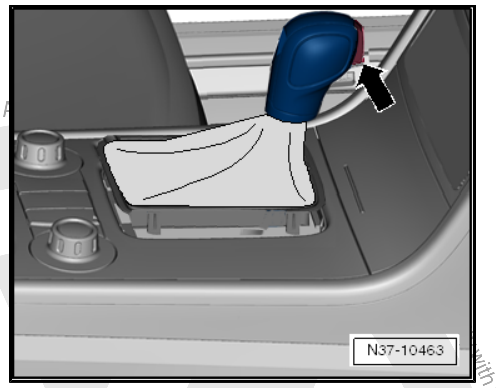
– Move the selector lever into the “ D” position.

Handle with the Button on the Side:



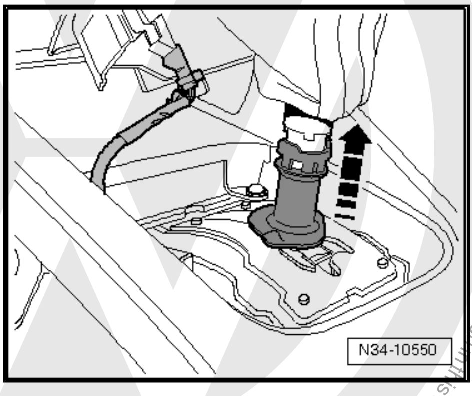
- Pull the button out of the handle just far enough until there is a small gap between the handle and the button. The button locks when released.
- Prevent the button from being pressed in using a cable tie or wire.

Handle with the Button in the Front:



It is not necessary to pull out the button manually. The button locks in the installed position - arrow-. when the handle is removed.

Continuation for All



- Remove the cover.
- Disconnect the connector from the selector cover.
- Push the sleeve upward and unlock the handle.
- Remove the handle from the selector lever without pushing the button.

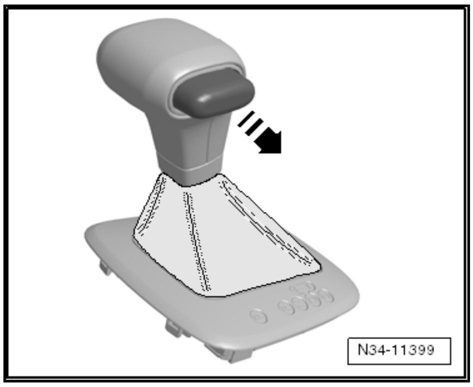
Note

Do not push the button once the handle has been removed otherwise it will not be possible to install the handle again.

Installing

- Install in reverse order of removal. Note the following:
- The selector lever is in the “ D” position.

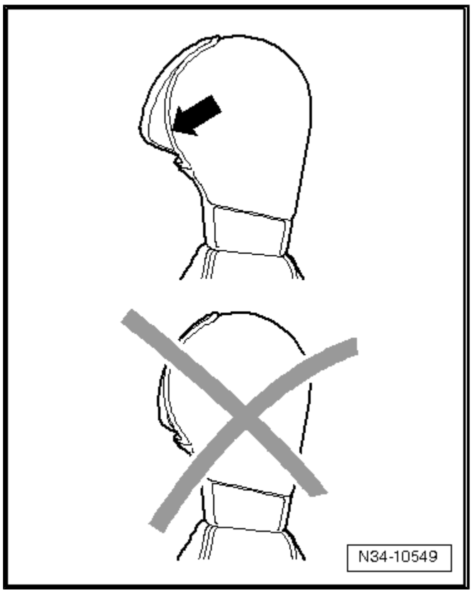
Handle with the Button on the Side:



- The button inside the handle is pulled out and is protected from getting pushed in again.

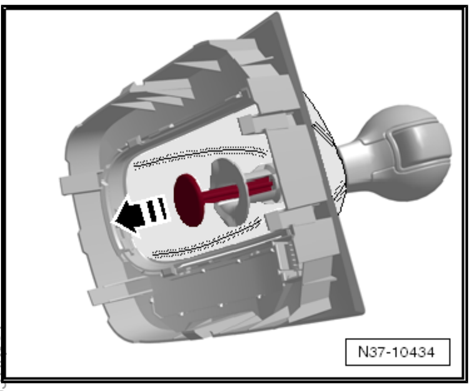
Handle with the Button in the Front:

- The button is in the installed position -arrow-.



If the button was pushed in by mistake, the installed position can be set again.

– Move the button into the installed position. Refer to ⇒ “5.2 Handle Button, Moving Into the Installed Position”, page 51 .



Note

A new handle is delivered with an assembly aid. Pull out the assembly aid just prior to installation.

If the button was pushed in by mistake, the installed position can be set again. To do this, press the button and push the assembly aid all the way in, release the button and then pull the assembly aid back out again. The button engages in the installed position.

Continuation for All

– Install the handle all the way onto the selector lever and secure it.

– Push the sleeve down to secure it.

– Push the button inside the selector lever handle after it has been installed.

Note

If the button stays in the handle after being pressed, this means it was installed incorrectly. When this happen, the handle must be reinstalled again. Remove the handle from the selector lever, move the button into its installed position and then reinstall the handle again.

Further installation is performed in the reverse sequence.

5.2 Handle Button, Moving Into the Installed Position

Handle with the Button on the Side:

– Pull the button out of the handle just far enough until there is a small gap between the handle and the button. The button locks when released.

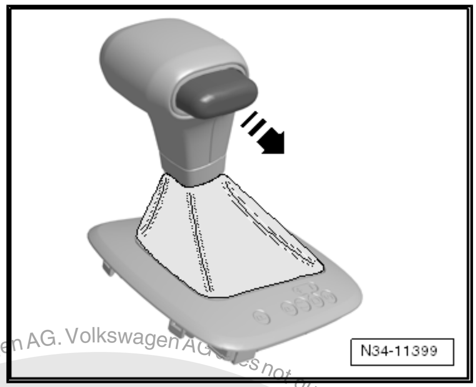
- Prevent the button from being pressed in using a cable tie or wire.

Handle with the Button in the Front:

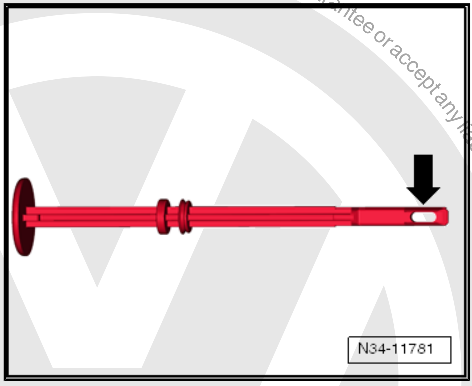
The button cannot be pulled out on these handles.

There are two way to move the button into the installed position, with or without an assembly aid. The following describes both ways.

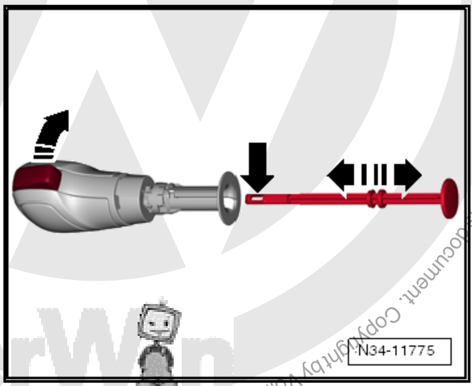
Moving the Handle With an Assembly Aid into the Installed Position:



Make sure the assembly aid has an eye -arrow- at the front. Other the assembly aid cannot be used.

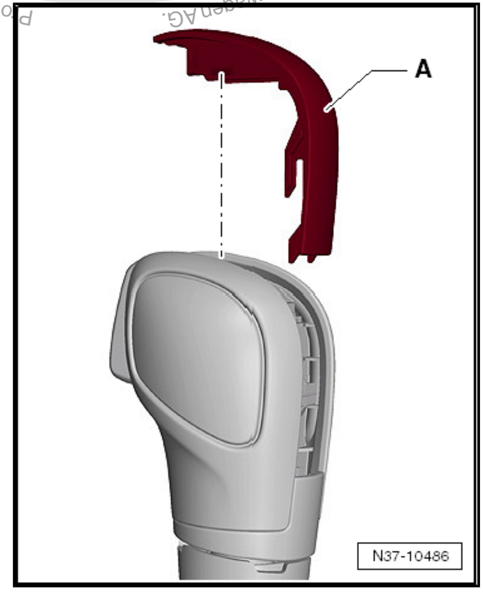


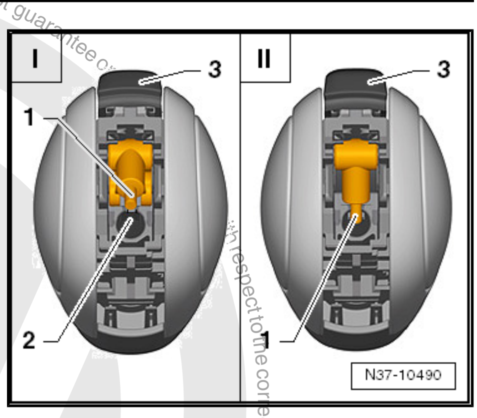
- Press the button and push the assembly aid (with the eye) -arrow- all the way in, until it latches into place. Then release the button. The button locks into the installed position when the assembly aid is pulled out.



Moving the Handle Without an Assembly Aid into the Installed Position:

- Remove the trim -A- from the handle.





– Push the small lever -1- into the groove -2- with a screwdriver. This pushes the button -3- into the installed position.

-I- the button is in the pressed position

-II- the button is in the installed position

Note

- *Push the lever into the groove and no further.*
- *Install the trim back onto the handle only after the handle is installed. This way it is possible to see if the small lever fits into the pull rod when the button is pushed.*

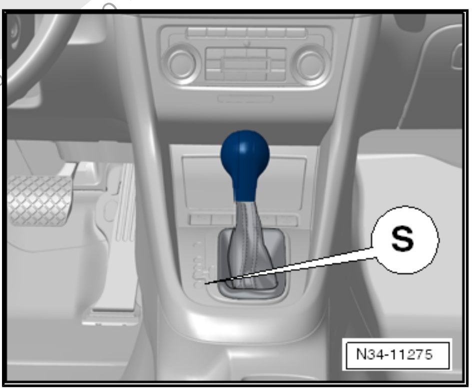
5.3 Selector Lever Cable, through 02/2009

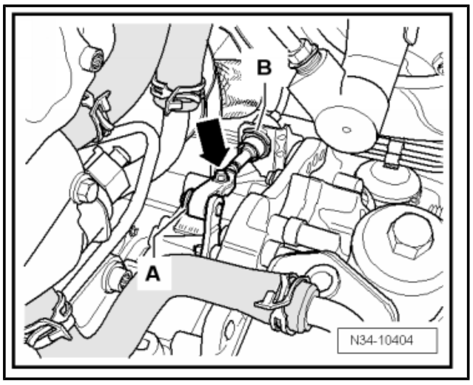
Note

Check the cable for ease of movement after installing it.

Removing

– Move the selector lever into the “S” position.





Loosen the adjustment bolt -arrow-.

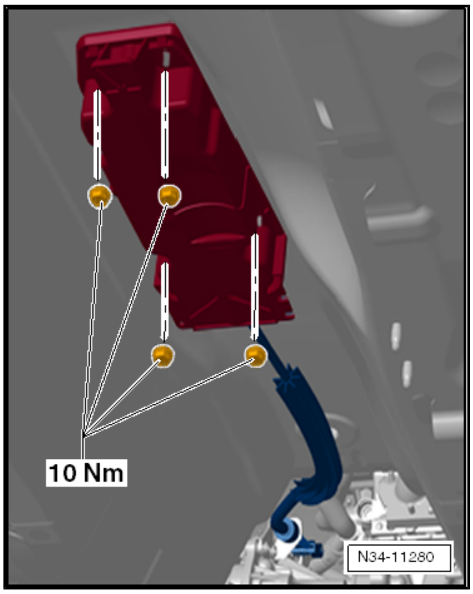
– Remove the lock washers -A and B-. The lock washers must later be replaced when adjusting the cable.

– Lift the vehicle.

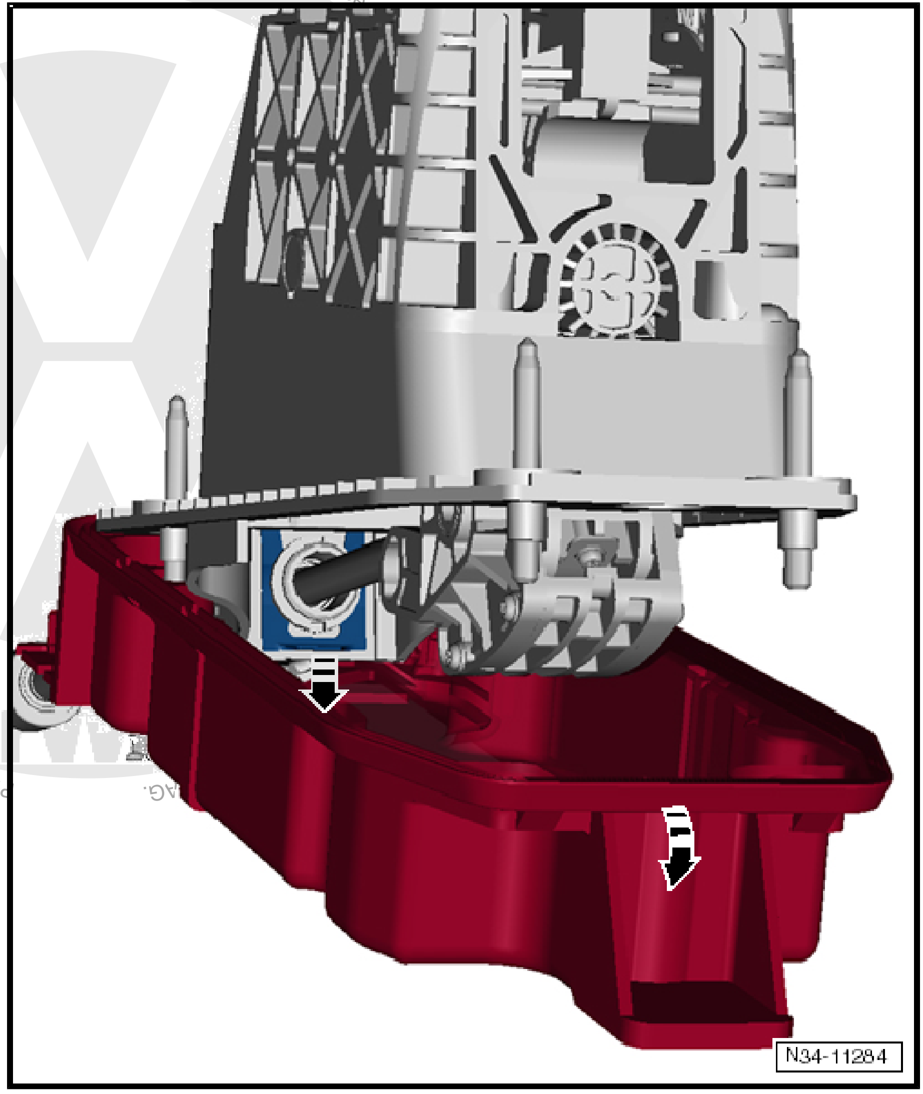
– In order to remove the cable and/or selector mechanism, the heat shield and if necessary, exhaust system components must now be removed. Refer to ⇒ Engine Mechanical, Fuel Injection and Ignition; Rep. Gr. 26 ; Description and Operation .

– Remove the heat shield.

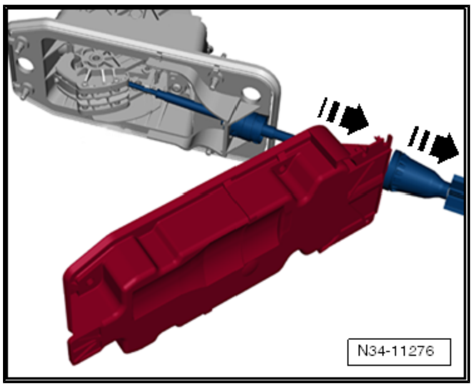
– Remove the selector housing under the selector lever.



– Remove the retainer plate on the cable bracket. Always replace the retainer plate.

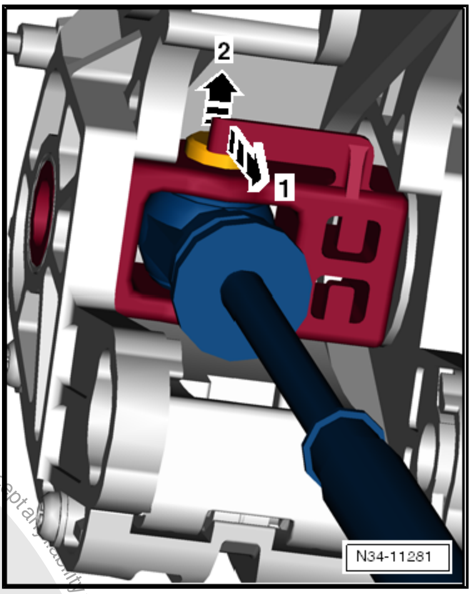


The selector housing is pushed forward on the cable.

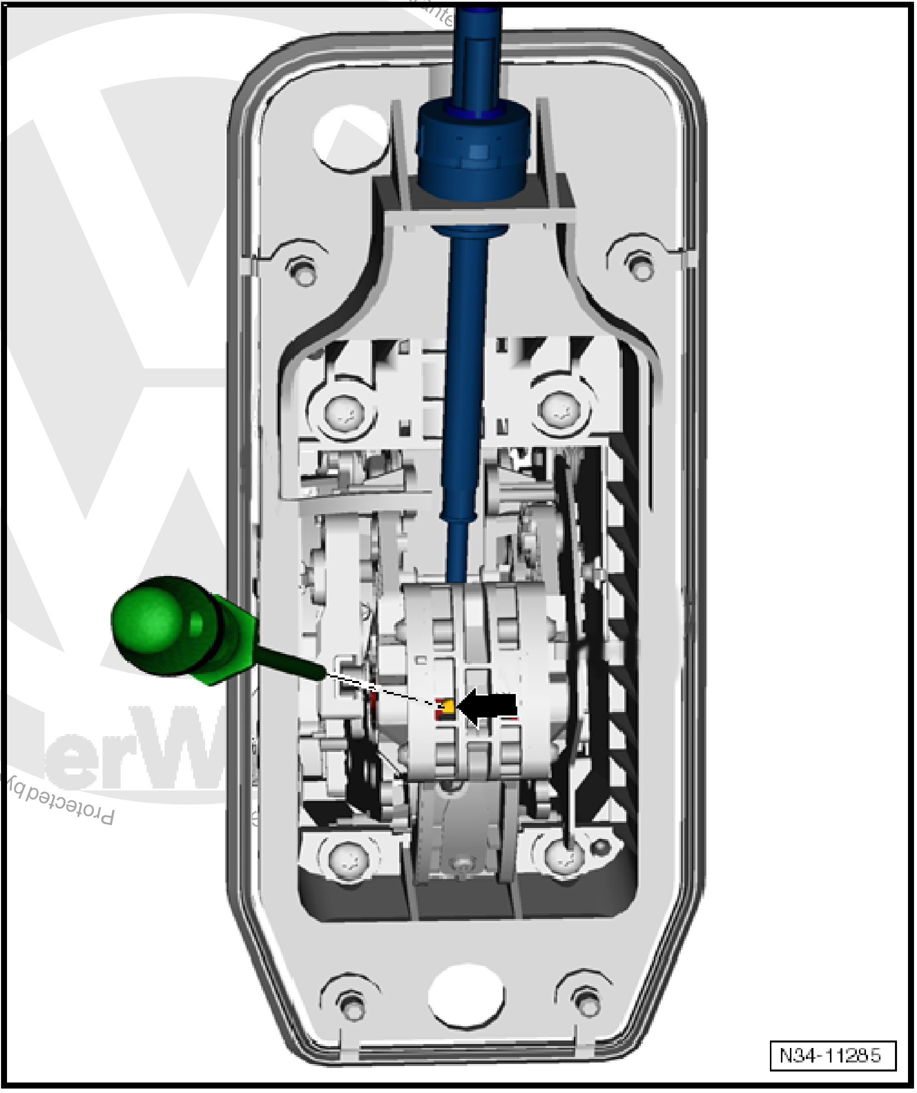


The locking strap must be pushed forward in order to remove the cable -1-.

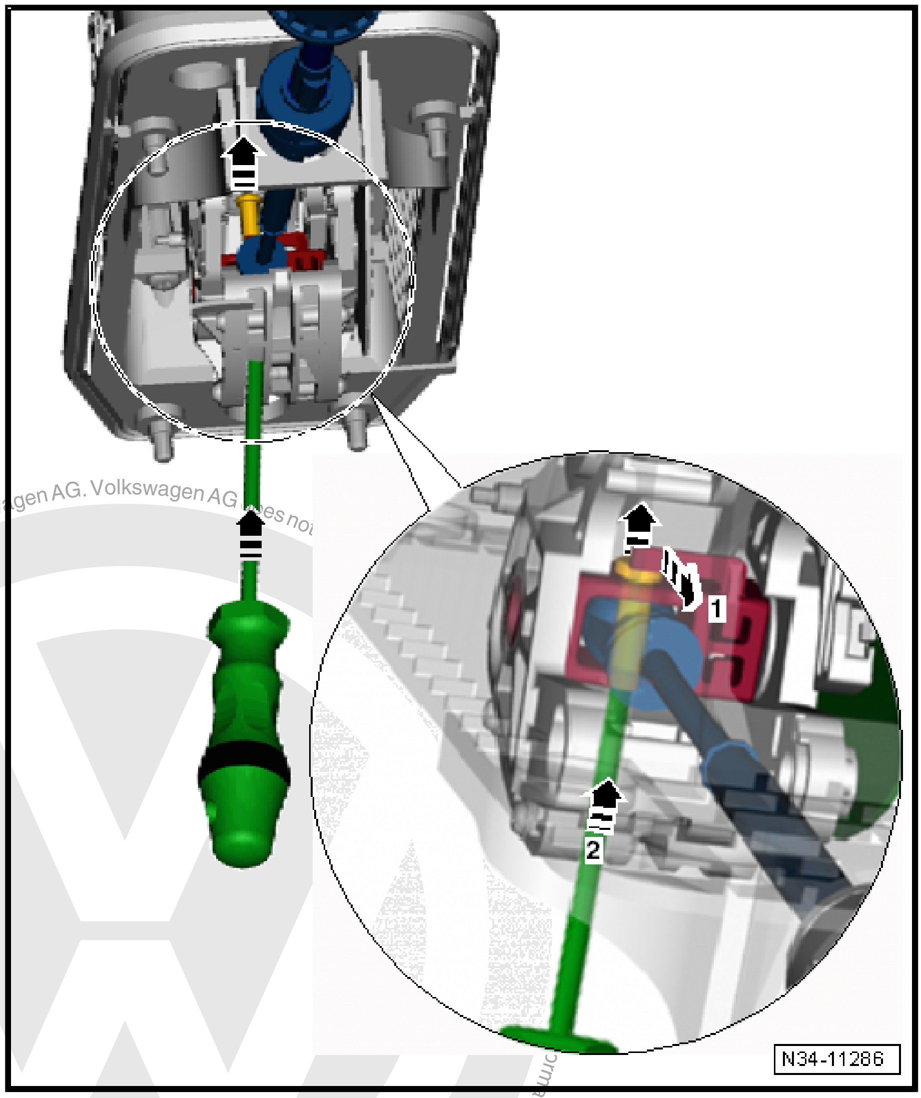
- Push the pin upward at the same time with a screwdriver -2-.



- Insert the screwdriver from underneath.

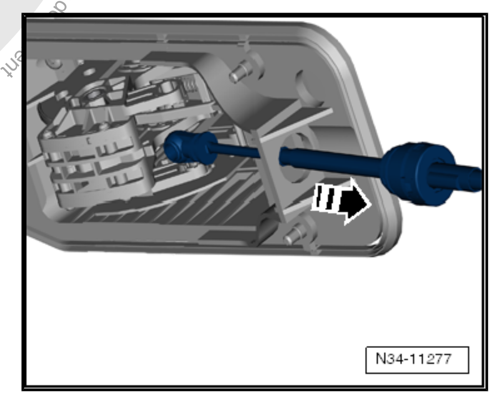


For Clarity:



- Remove the selector lever cable.

Remove the selector housing from the cable

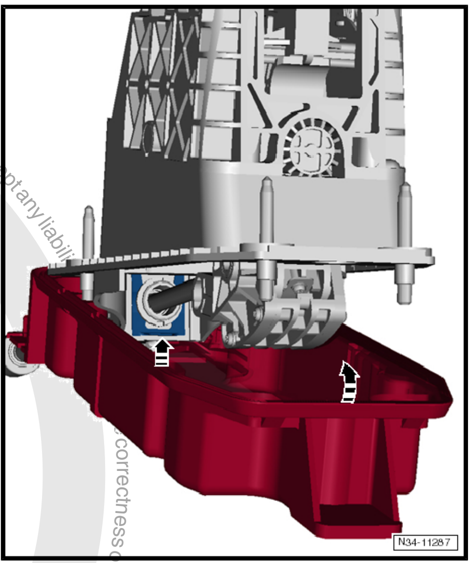


Installing

Do not grease the cable.

- Route the selector lever cable, making sure it is free of tension. Install is also into the cable bracket on the transmission. Do not secure yet with the lock washers. Do not install the ball head.
- When installing, make sure the selector lever cable is routed correctly.
- Install the selector housing onto the cable.

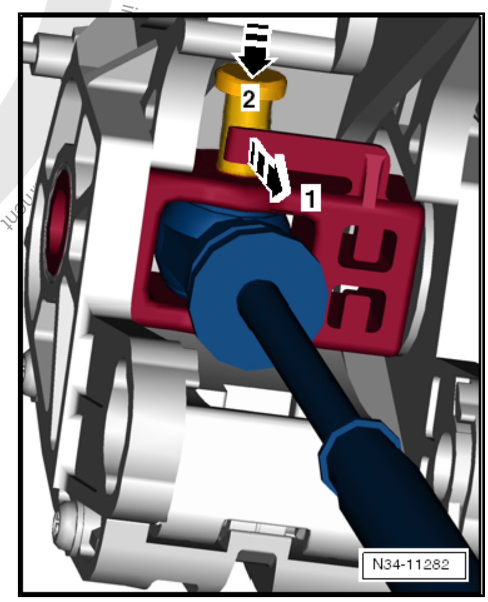
– Install the selector lever cable into the selector mechanism.



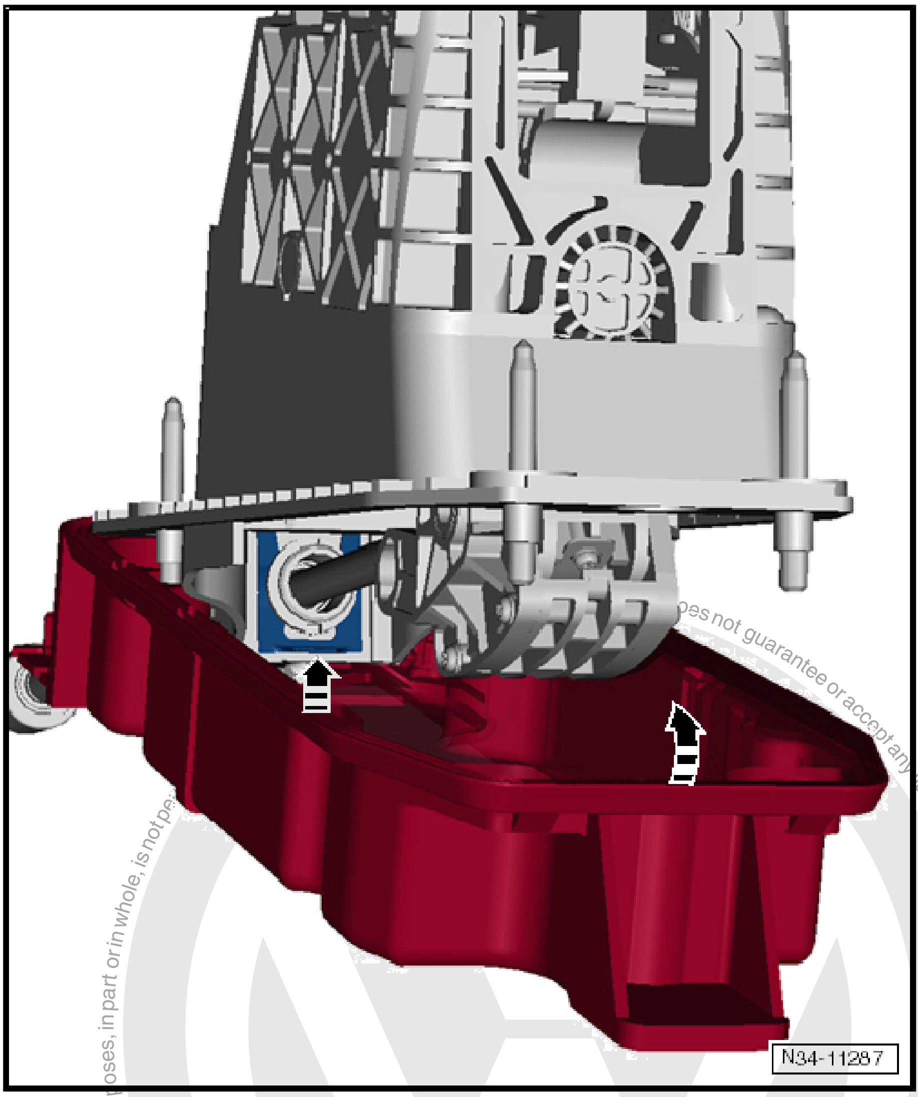
– Insert the cable into the bracket and then insert the pin through the eye from the top

– Check the selector lever cable for ease of movement. Refer to ⇒ “4.1 Selector Lever Cable, Checking”, page 47 .

– Install a new retainer plate.

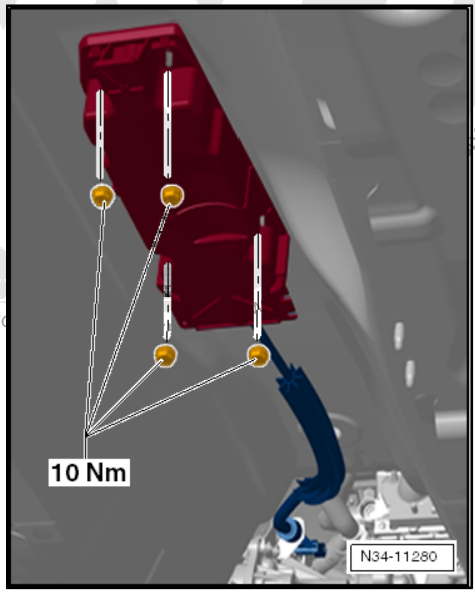


– Secure the cable with a new retainer plate to the cable bracket on the selector mechanism.



- Install the selector housing.
- Adjust the selector lever cable. Refer to ⇒ “2.3 Selector Lever Cable, Adjusting”, page 35 .
- Install heat shield.

If the plate underneath is bent, there will be noises. The cable will then flap on the plate.



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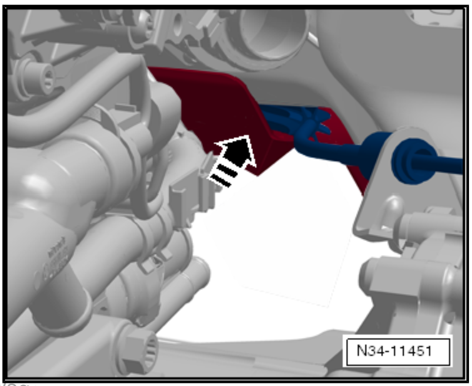
- Push the plate upward into the tunnel in direction of -arrow- when installing it.
- Install the exhaust system. Refer to ⇒ Engine Mechanical, Fuel Injection and Ignition; Rep. Gr. 26 ; Description and Operation .



5.4 Selector Mechanism with Housing, from 03/2009

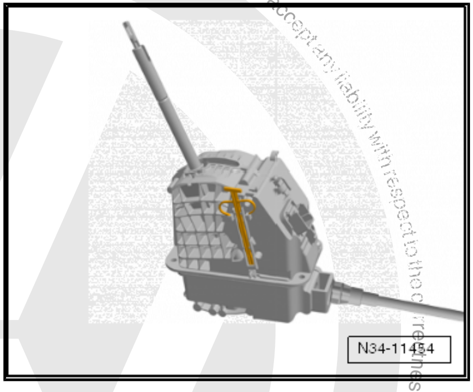
Short Description

The selector mechanism and the selector lever cable cannot be separated from each other. Both are removed with the selector housing.

Remove the center console inside the passenger compartment.

It is necessary to remove the heat shield under the vehicle.

It is possible to remove and install the selector mechanism with the selector lever cable alone without the selector housing. Refer to ⇒ “5.5 Selector Mechanism without Housing, from 03/2009”, page 62 .

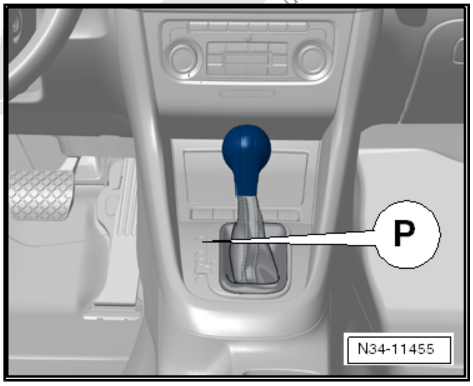


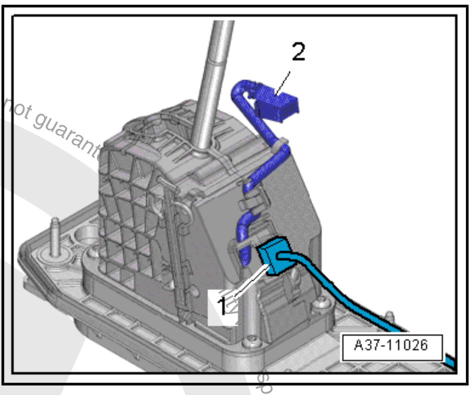
Note

After installation, the selector lever cable movement must be checked and adjusted.

Removing

- Move the selector lever into the “P” position.
- Remove the selector lever handle. Refer to ⇒ “5.1 Selector Lever Handle”, page 49 .
- Remove the center console. Refer to “Storage Compartments, Covers and Trim” in ⇒ Body Interior; Rep. Gr. 68 ; Removal and Installation .

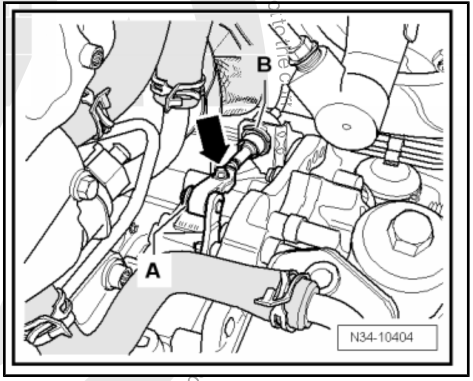




- Disconnect the connector -1- from the selector mechanism to the vehicle wiring harness.
- Remove the complete air filter housing. Refer to one of the following:

◆ Gas engines. Refer to ⇒ Engine Mechanical, Fuel Injection and Ignition; Rep. Gr. 24 ; Removal and Installation .

◆ Diesel engines. Refer to ⇒ Engine Mechanical, Fuel Injection and Glow Plug; Rep. Gr. 23 ; Removal and Installation .



- Remove the lock washers -A and B-. The lock washers must later be replaced when adjusting the selector lever cable.

Loosen the adjustment bolt -arrow-.

Use pliers to remove the lock washer -B-. Do not use a sharp edged tool. Otherwise the selector lever cable could get damaged.

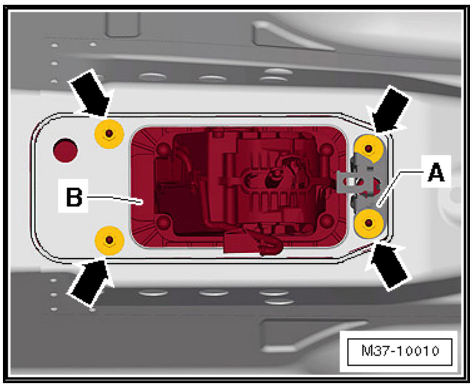
- Remove the center tunnel heat shield under the selector mechanism.

Note

A second technician is required under the vehicle to remove the selector mechanism.

- Remove the nuts -arrows- in the vehicle's interior.
- Remove the bracket -A-, if equipped.

– Remove the selector mechanism -B- with the selector lever cable and housing downward.



Installing

Install in the reverse order of removal.

Note

- *Do not bend or kink the selector lever cable.*
- *Do not lubricate the selector lever cable.*
- *Tightening specifications. Refer to ⇒ "2.5 Overview - Selector Mechanism, from 03/2009", page 38 .*

– Install the heat shield under the selector mechanism.

– Install the center console. Refer to "Storage Compartments, Covers and Trim" in ⇒ Body Interior; Rep. Gr. 68 ; Removal and Installation .

– Install the selector lever handle. Refer to ⇒ "5.1 Selector Lever Handle", page 49 .

– Adjust the selector lever cable. Refer to ⇒ "4.1 Selector Lever Cable, Checking", page 47 .

– Check the selector mechanism. Refer to ⇒ "4.2 Selector Mechanism, Checking", page 47 .

– Install the complete air filter housing. Refer to one of the following:

- Gas engines. Refer to ⇒ Engine Mechanical, Fuel Injection and Ignition; Rep. Gr. 24 ; Removal and Installation .
- Diesel engine. Refer to ⇒ Engine Mechanical, Fuel Injection and Glow Plug; Rep. Gr. 23 ; Removal and Installation .

5.5 Selector Mechanism without Housing, from 03/2009

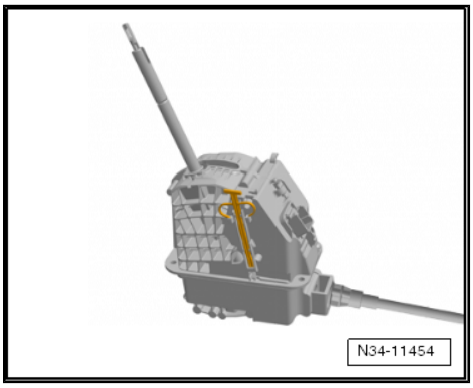
Short Description

The selector mechanism and the selector lever cable cannot be separated from each other. Both are removed at the same time.

Remove the center console inside the passenger compartment.

Attach a cord/wire to the cable prior to removal. The cord/wire is used to remove and install the cable between the tunnel and the heat shield.

The selector mechanism with selector lever cable can be removed and installed together with the selector housing. Refer to ⇒ “5.4 Selector Mechanism with Housing, from 03/2009”, page 60 .



Removing

– Remove the selector lever handle. Refer to ⇒ “5.1 Selector Lever Handle”, page 49 .

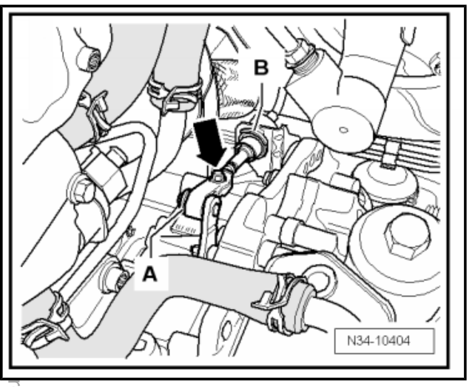
– Remove the center console. Refer to “Storage Compartments, Covers and Trim” in ⇒ Body Interior; Rep. Gr. 68 ; Removal and Installation .

– Disconnect the connector from the selector mechanism to the vehicle wiring harness.

– Remove the air filter housing. Refer to one of the following:

♦ Gas engines. Refer to ⇒ Engine Mechanical, Fuel Injection and Ignition; Rep. Gr. 24 ; Removal and Installation .

♦ Diesel engines. Refer to ⇒ Engine Mechanical, Fuel Injection and Glow Plug; Rep. Gr. 23 ; Removal and Installation .

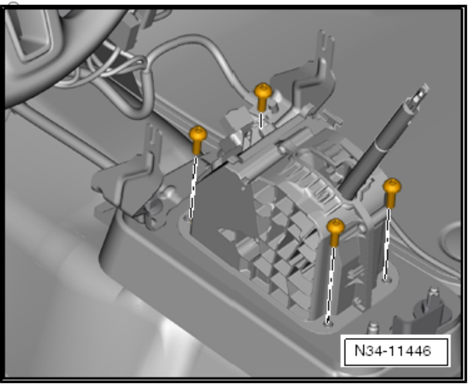


– Remove the lock washers -A and B-. The lock washers must later be replaced when adjusting the selector lever cable.

Loosen the adjustment bolt -arrow-.

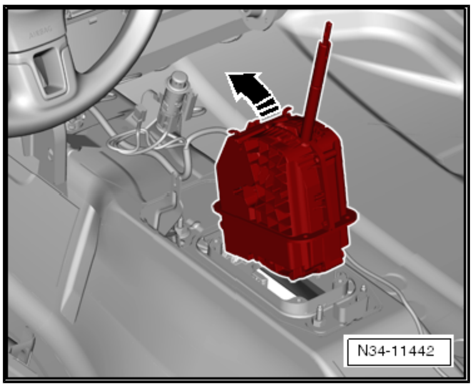
Use pliers to remove the lock washer -B-. Do not use a sharp edged tool. Otherwise the selector lever cable could get damaged.

– Attach a long cord/wire to the end of the cable. The cord/wire is then used to guide the cable between the tunnel and the heat shield during installation.



– Remove the 4 bolts.

– Pull the selector mechanism and cable out of the center tunnel. Make sure the cord/wire is pulled through far enough so that it can reached from inside the engine compartment.



– Remove the cord/wire from the cable.

Installing

Installation is performed in the reverse order while observing the following:

A second technician will be needed for inserting the cable from the passenger compartment into the engine compartment.

Note

- *Do not bend or kink the selector lever cable.*
- *Do not lubricate the selector lever cable.*
- *Tightening specifications. Refer to ⇒ “2.5 Overview - Selector Mechanism, from 03/2009”, page 38 .*

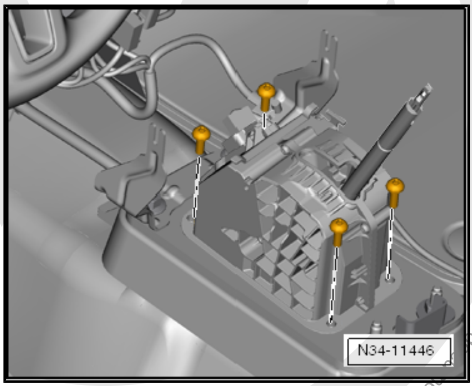
– Secure the cord/wire to the end of the cable.

– Guide the selector mechanism and cable through the opening in the center tunnel.

– From the engine compartment, the second technician pulls the cord/wire with the cable through the tunnel until it is possible to attach the cable to the bracket.

– Remove the cord/wire from the cable.

– Attach the selector mechanism to the selector housing with the four bolts.



Tightening specification: 8 Nm.

– Install the center console. Refer to “Storage Compartments, Covers and Trim” in ⇒ Body Interior; Rep. Gr. 68 ; Removal and Installation .

– Install the selector lever handle. Refer to ⇒ “5.1 Selector Lever Handle”, page 49 .

– Adjust the selector lever cable. Refer to ⇒ “4.1 Selector Lever Cable, Checking”, page 47 .

– Check the selector mechanism. Refer to ⇒ “4.2 Selector Mechanism, Checking”, page 47 .

– Install the air filter housing. Refer to one of the following:

- Gas engines. Refer to ⇒ Engine Mechanical, Fuel Injection and Ignition; Rep. Gr. 24 ; Removal and Installation .
- Diesel engines. Refer to ⇒ Engine Mechanical, Fuel Injection and Glow Plug; Rep. Gr. 23 ; Removal and Installation .

5.6 Transmission Oil Cooler

Special tools and workshop equipment required

- Hose Clamps - Up to 25 mm - 3094-
- Torque Wrench 1331 5-50Nm - VAG1331-

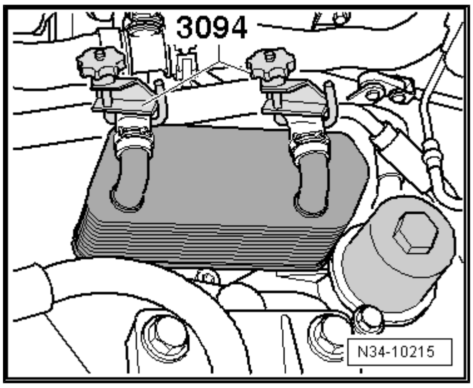
Removing

– Move the selector lever into the “P” position.

– Remove the battery and the battery tray. Refer to ⇒ Electrical Equipment; Rep. Gr. 27 ; Removal and Installation .

– Place a lint free cloth on the transmission oil cooler and transmission to absorb the leaking coolant.

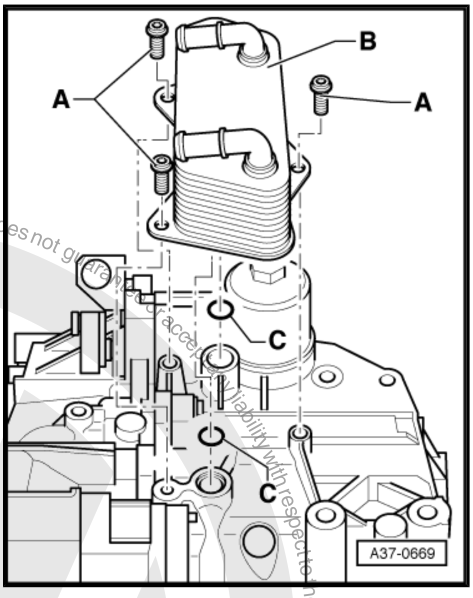
– Clamp off the coolant hoses using the Hose Clamps - Up to 25 mm - 3094- and remove the hoses from the cooler.



– Remove the bolts -A- and the transmission oil cooler -B-.

Caution

Coolant must not drip into the transmission!

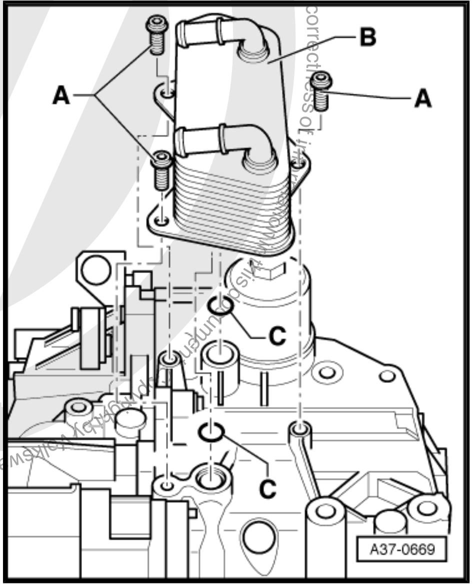


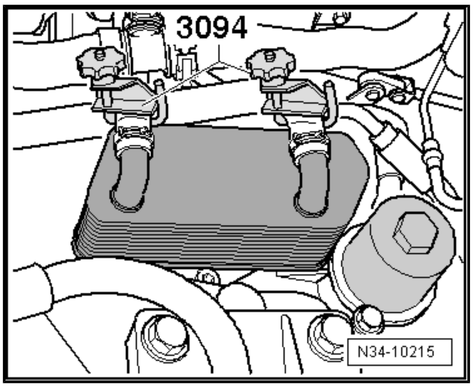
Installing

– Replace the transmission oil cooler O-rings -C-.

– Install the transmission oil cooler -B-, while doing this, pay attention to the O-rings -C-.

– Install and tighten the new bolts -A- to 20 Nm + an additional 90° (1/4) turn.





– Connect the coolant hoses to the transmission oil cooler and remove the Hose Clamps - Up to 25 mm - 3094- .

– Install the battery tray and the battery. Refer to ⇒ Electrical Equipment; Rep. Gr. 27 ; Removal and Installation .

– Check coolant level and fill if necessary. Refer to one of the following:

Gas engines. Refer to ⇒ Engine Mechanical, Fuel Injection and Ignition; Rep. Gr. 19 ; Description and Operation .

Diesel engines. Refer to ⇒ Engine Mechanical, Fuel Injection and Glow Plug; Rep. Gr. 19 ; Description and Operation .

– After repairing, check the transmission oil level and fill if required. Refer to ⇒ “1.2 Transmission Oil Level, Checking and Filling”, page 28 .

Caution

Do not start the engine during coolant level testing if the transmission oil has not been filled yet.

5.7 Oil Pump

Special tools and workshop equipment required

♦ Torque Wrench 1331 5-50Nm - VAG1331-

♦ Used Oil Collection And Extraction Unit - SMN372500-

Short Description

The oil pump can be replaced without removing the transmission. The vehicle must be raised and any covers installed on the bottom of the front end must be removed. The control arm to strut connection does not need to be separated. The drive axle also does not have to be removed. It is also not necessary to perform a basic measurement. Only the Direct Shift Gearbox (DSG®) oil and pump cover must be replaced.

Removing

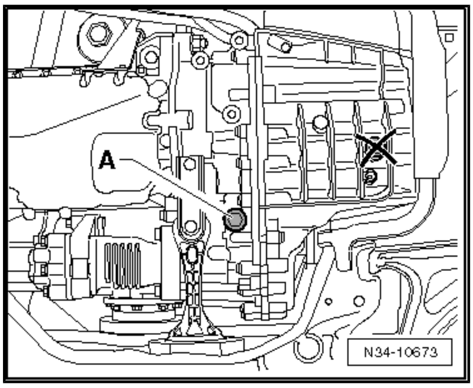
– Remove the noise insulation. Refer to ⇒ Body Exterior; Rep. Gr. 50 ; Description and Operation .

– Remove the lower section of the left wheel housing liner. Refer to ⇒ Body Exterior; Rep. Gr. 66 ; Removal and Installation .

– Place the Used Oil Collection And Extraction Unit - SMN372500- under the transmission.

In regard to “contaminated oil”, also observe the information on when to change the filter. Refer to ⇒ page 4 .

Up to transmission production date “September 20, 2004”, transmissions with two plugs were installed.



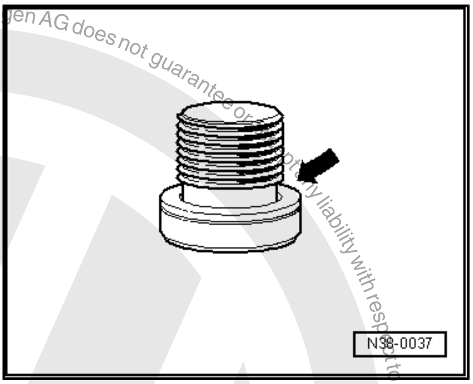
– Remove the plug -A- near the pendulum support.

A plastic overflow tube is located in this hole (with a 8 mm hex socket head, tightening specification: 3 Nm). Its length determines the oil level in the transmission.

– Remove the overflow tube.

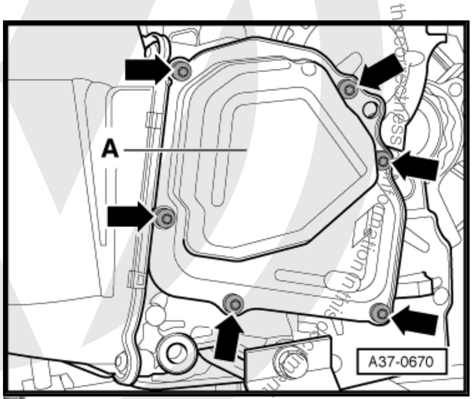
– Drain the oil.

– Reinstall the overflow tube; tightening specification: 3 Nm.



– Replace the seal -arrow- on the plug.

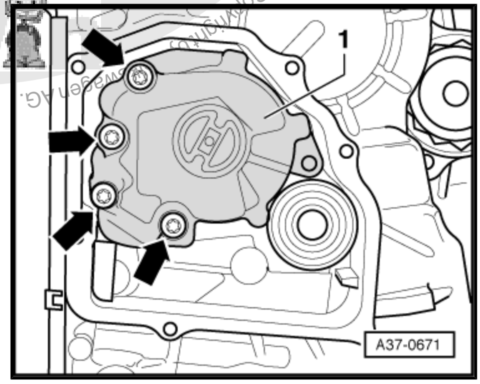
– The Used Oil Collection And Extraction Unit - SMN372500- remains under the transmission.



– Remove the bolts -arrows- and remove the cover -A-.

There Is Still Oil in the Oil Pump Cover.

– Remove the bolts -arrows- and the pump -1- from the alignment pins and pull the input shaft from the pump.



Remove the top bolt using the Wrench - Pump/Injector Long Reach - T10054- .

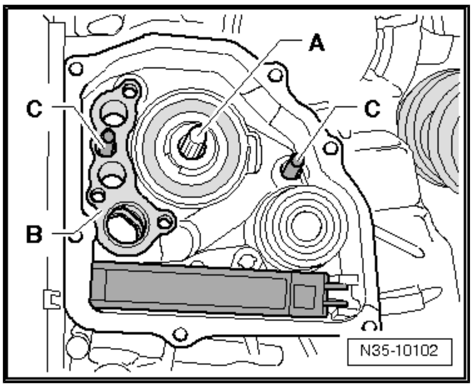
Installing

– Insert the oil pump input shaft -A- all the way into the transmission. Turn the input shaft while doing this.

– Always use a new metal gasket -B-.

- The 2 alignment pins -C- must be inside the transmission housing.

– When positioning the oil pump, pay attention to the input shaft splines and correct seating on the alignment pins.

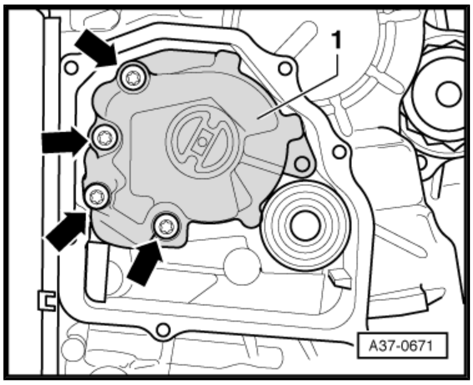


Various Oil Pump Bolts

All 4 bolts -arrows- with flat heads

Tightening specification:

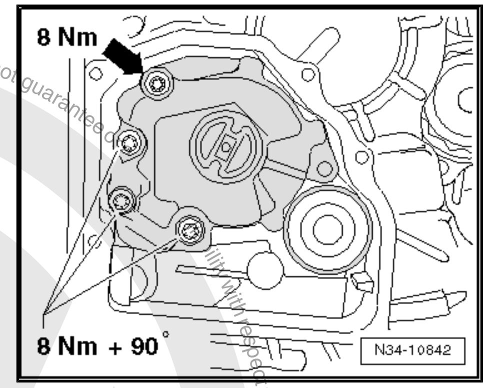
- 5 Nm + an additional 90° (1/4) turn.



3 bolts have a flat head and the upper bolt is countersunk

Tightening specification:

- Countersunk bolt: 8 Nm (tighten using the Wrench - Pump/Injector Long Reach - T10054-)
- Flat head bolts: 8 Nm + an additional 90° (1/4) turn.



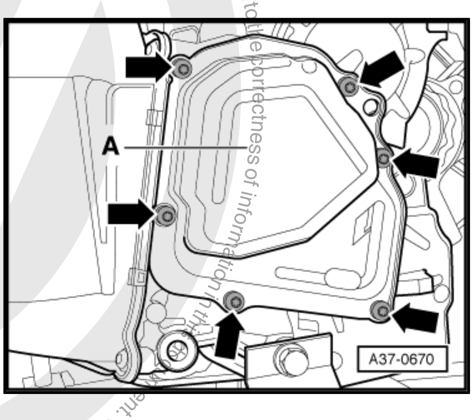
– Set the new oil pump cover -A- in place and tighten the new bolts -arrows- in a diagonal sequence and in several steps to 8 Nm.

The transmission does not have oil. You must now add new oil and adjust to the correct oil level. Refer to ⇒ “1.3 DSG® Oil Draining and Filling”, page 30 .

– Replace the DSG® oil and filter. Refer to ⇒ “5.12 Oil Filter”, page 82 .

– Install the left wheel housing liner. Refer to ⇒ Body Exterior; Rep. Gr. 66 ; Removal and Installation .

– Install the noise insulation. Refer to ⇒ Body Exterior; Rep. Gr. 50 ; Description and Operation .



5.8 Selector Shaft Lever Seal, Transmission Removed

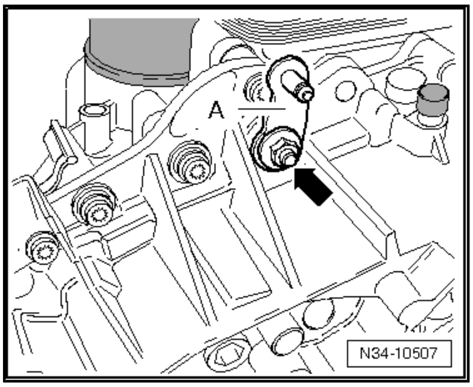
Special tools and workshop equipment required

- Press Piece - Shift Rod/Alternator - VW423-
- Puller - Crankshaft/Power Steering Seal - T20143-

- Torque Wrench 1331 5-50Nm - VAG1331-

– Remove the selector lever cable from the transmission. Refer to ⇒ “5.3 Selector Lever Cable, through 02/2009”, page 53 .

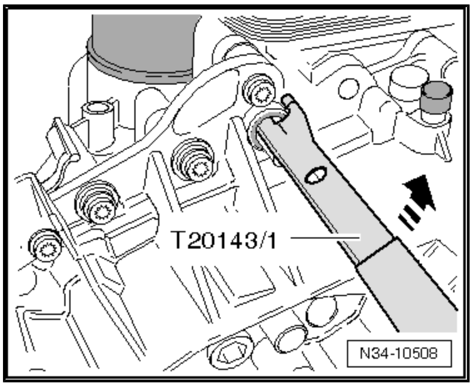
– Remove the nut -arrow- and carefully pry the lever -A- off the selector shaft.



– Pry out the seal.

– Lightly oil the outer circumference of the new seal.

– Fill the space between the sealing and dust lips half way with Sealing Grease for Seal - G 052 128 A1- .

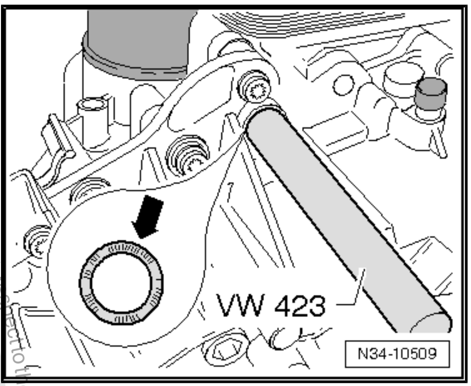


– Install the seal all the way in without tilting it.

– Install the lever and tighten the nut to 20 Nm.

The Selector Shaft Lever Fits on the Splines in One Position Only.

– Install the selector lever cable to the transmission. Refer to ⇒ “5.3 Selector Lever Cable, through 02/2009”, page 53 .



5.9 DSG Transmission Mechatronic - J743- , Transmission Installed

Special tools and workshop equipment required

- Torque Wrench 1331 5-50Nm - VAG1331-
- Used Oil Collection And Extraction Unit - SMN372500-
- Adapter for Oil Filling - VAS6262A-
- Speed Sender Release Tool - T10465-

Removing

Always make sure that no dirt enters an open transmission.

Dirt entering an open transmission can cause a malfunction especially with a open DSG Transmission Mechatronic - J743- and/or oil pump.

In regard to “contaminated oil”, also observe the information on when to change the filter. Refer to ⇒ page 4 .

The DSG Transmission Mechatronic - J743- can get stuck on the alignment pins when the transmission is very warm. Let the transmission cold down.

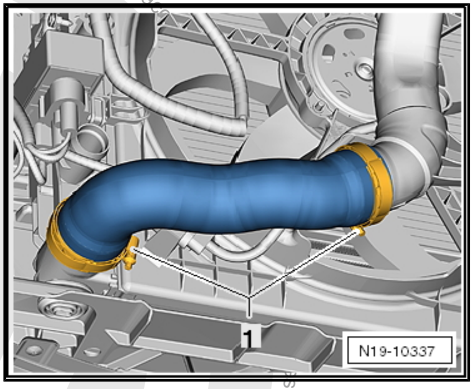
- Lift the vehicle, all 4 lift points for the hoist must be at the same height.
- Move the selector lever into the “P” position.
- Remove the noise insulation. Refer to ⇒ Body Exterior; Rep. Gr. 50 ; Removal and Installation .

If present:

- Remove the charge air hose from between the charge air cooler and the charge air pipe. Refer to one of the following:

  Gas engines. Refer to ⇒ Engine Mechanical, Fuel Injection and Ignition; Rep. Gr. 21 ; Description and Operation .

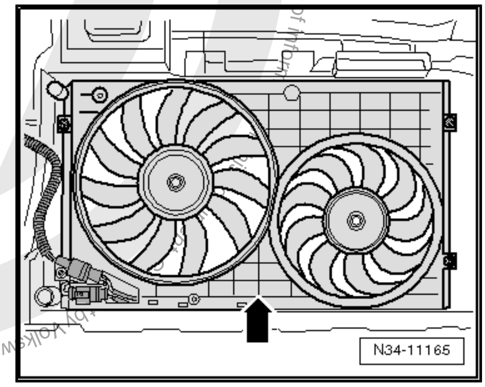
  Diesel engines. Refer to ⇒ Engine Mechanical, Fuel Injection and Glow Plug; Rep. Gr. 21 ; Description and Operation .



Note

It is possible that parts, which have nothing to do with the DSG Transmission Mechatronic - J743- , will have to be removed. It depends on the vehicle equipment. Make sure there is enough room around the DSG Transmission Mechatronic - J743- .

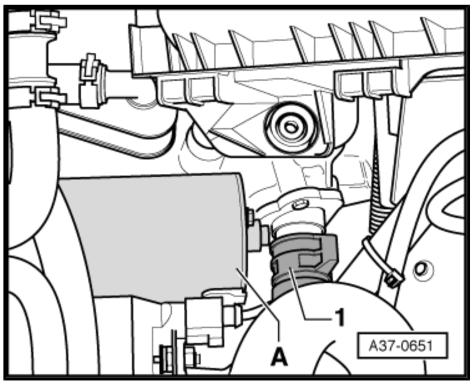
- Depending on the vehicle, the parts could be:
- Fan shroud
- Additional lines for the Air Conditioning (A/C) system
- Charge air pipes



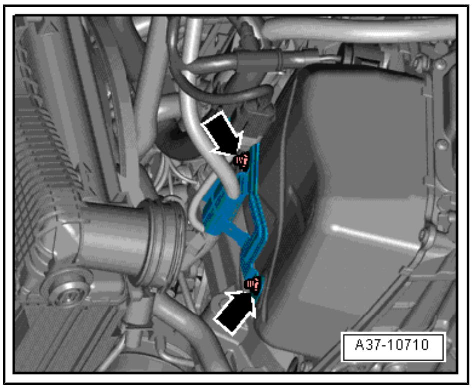
- Disconnect the connector -1- from the DSG Transmission Mechatronic - J743- .

Note

Ignore item -A-.



– Remove the two M6 nuts -arrows- and the wire bracket from the large transmission cover.



Tightening specification: 10 Nm

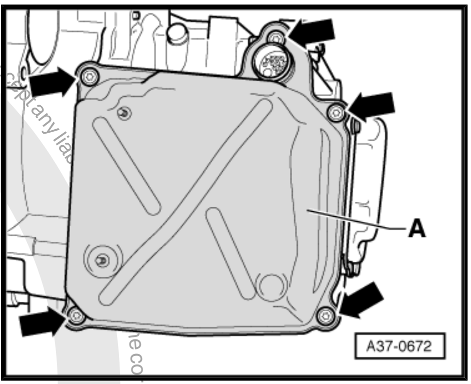
– Position the wires in the area of the cover upward and secure.

– Place the Used Oil Collection And Extraction Unit -SMN372500- under the transmission near the large cover.

Caution

Oil will leak out of the cover when the bolts are removed. Risk of injury due to hot oil.

– Loosen the cover bolts -arrows- diagonally and remove them. Hold the cover in place while doing this.



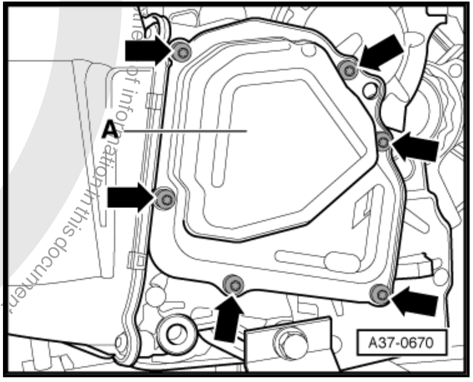
– Drain the oil and remove the cover and seal.

About 3 liters of oil will drain out.

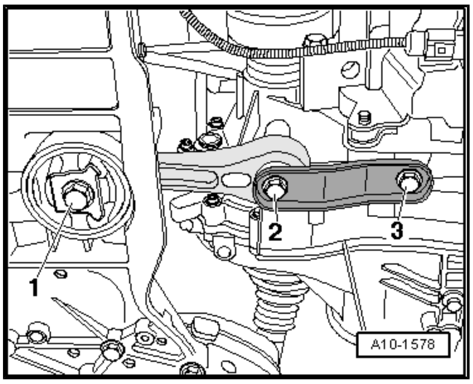
Note

Always replace the small oil pump cover, the seal and the bolts for the large cover.

– Remove the oil pump cover bolts -arrows- and cover -A-.



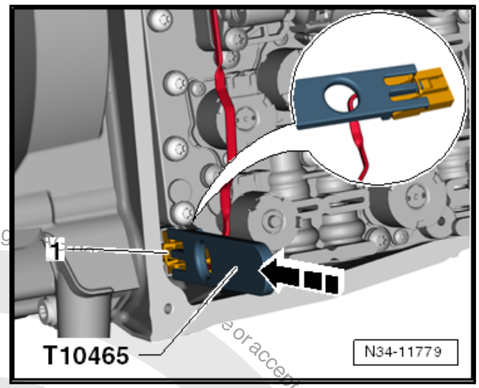
– Remove the pendulum support to transmission bolts -2 and 3-.



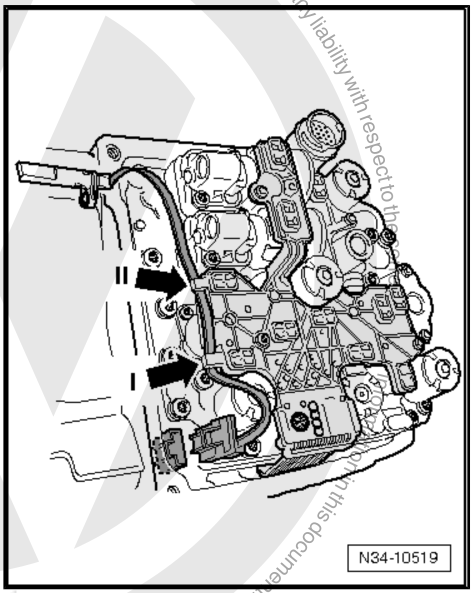
The transmission can now be pressed down slightly to remove the DSG Transmission Mechatronic - J743- .

Before handling the DSG Transmission Mechatronic - J743- , touch a grounded object. Refer to “Electrical Components” ⇒ page 5 .

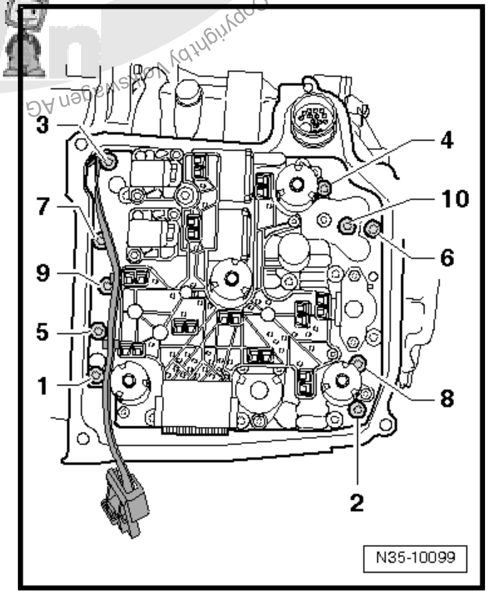
- Disconnect the connector -1- from the Transmission Input Speed Sensor - G182- and Clutch Oil Temperature Sensor - G509- using the Speed Sender Release Tool - T10465- .
- First, remove the wire from lower clip -arrow I-.


1
T10465
N34-11779

- Then remove the wire from the upper clip -arrow II- and lay it aside. Do not kink the wire.


II
I
N34-10519

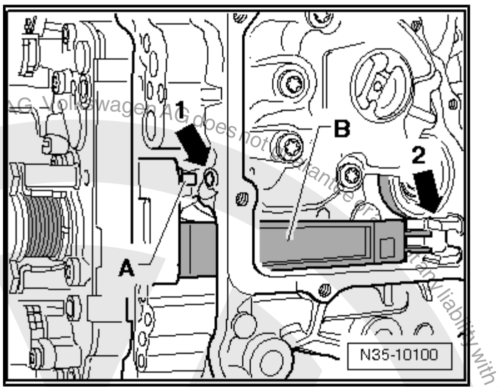
- Loosen and remove the bolts -1 through 10- in the specified sequence.


3
7
9
5
1
4
10
6
8
2
N35-10099

– Carefully pull the DSG Transmission Mechatronic - J743- out of transmission housing far enough until the sensor arm -B- on the rear side is no longer located in the transmission housing.

When handling the DSG Transmission Mechatronic - J743- , be particularly aware of the long sensor arm.

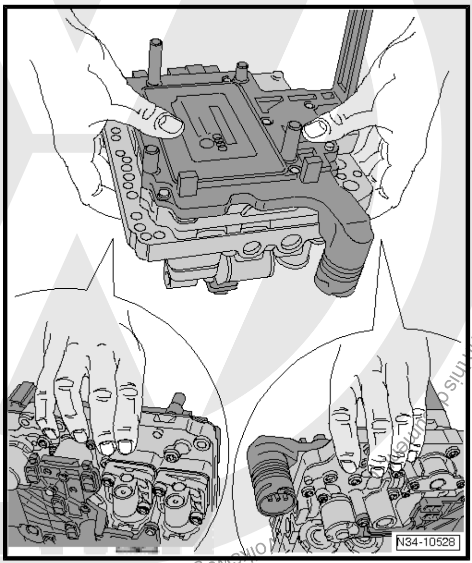
– Carefully move the DSG Transmission Mechatronic - J743- downward.



Store the DSG Transmission Mechatronic - J743- Properly.

⚠ Caution

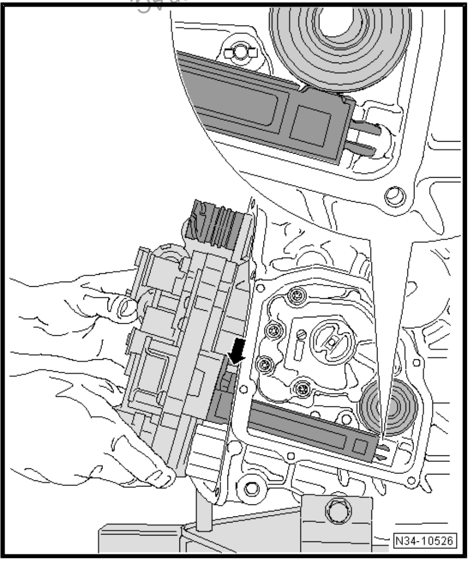
Never lift the DSG Transmission Mechatronic - J743- by the sensor arm and never let it rest on the arm.



Replace the DSG Transmission Mechatronic - J743- if the Sensor Arm Gets Damaged.

Installing

Before handling the DSG Transmission Mechatronic - J743- , touch a grounded object again. Refer to “Electrical Components” ⇒ page 5 .



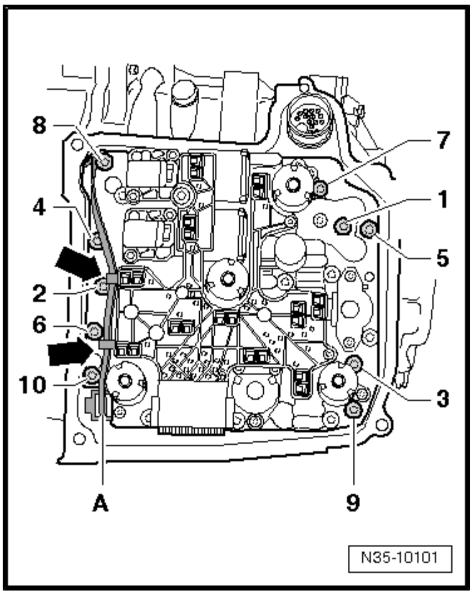
– Carefully install the DSG Transmission Mechatronic - J743- into the transmission.

– Do not pinch the wire.

– Carefully mount the DSG Transmission Mechatronic - J743- onto the alignment pins -arrow-. The goal is for the sensor arm to be in its installed position.

– Make sure the DSG Transmission Mechatronic - J743- is installed correctly.

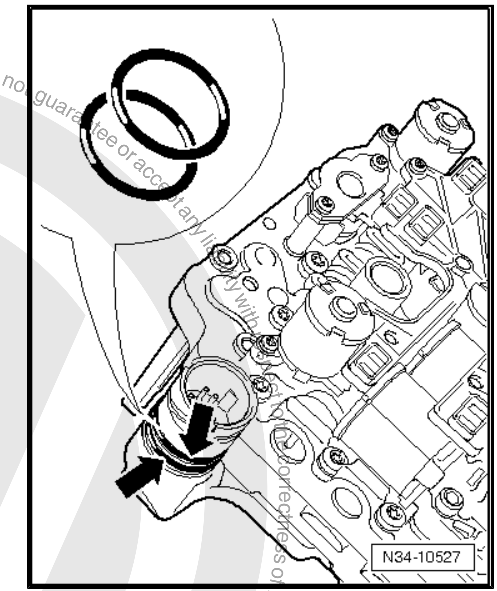
- Install the new bolts -1 through 10- hand tight.
- Tighten the bolts to 5 Nm + an additional 90° (1/4) turn, in the specified sequence.
- Hook the wire -A- first under the upper, and then under the lower clips -arrows-.
- Connect the connector.



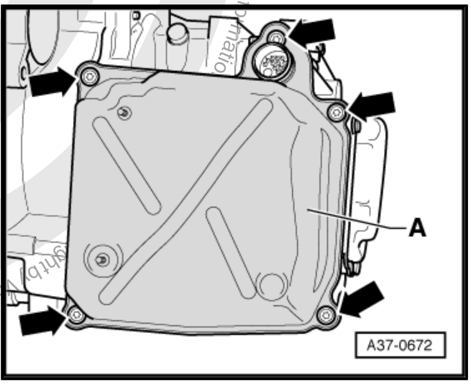
- Replace both O-rings if reinstalling the old DSG Transmission Mechatronic - J743- .

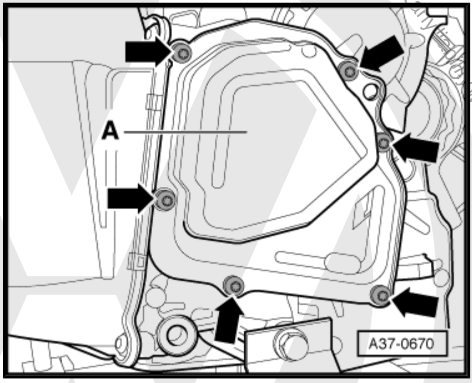
A new DSG Transmission Mechatronic - J743- already has new O-rings.

- Coat the O-rings with Direct Shift Gearbox (DSG®) oil.
- Clean the cover seal and transmission sealing surfaces.
- Make sure the seal fits correctly.
- Place the cover -A- over the DSG Transmission Mechatronic - J743- without pinching any wires.



- Install new bolts -arrows- and tighten them to 16 Nm diagonally and in several steps.

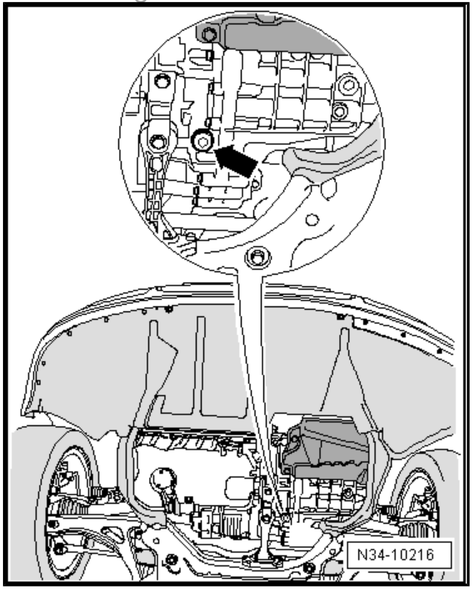




- Set the new oil pump cover -A- in place and tighten the bolts -arrows- in a diagonal sequence to 8 Nm in stages.
- Install the wire bracket to the cover and then tighten the nuts to 10 Nm.
- Connect the connector to the DSG Transmission Mechatronic - J743- and engage the retainer by turning.
- If present: Install the charge air hose between the charge air cooler and charge air pipe. Refer to one of the following:

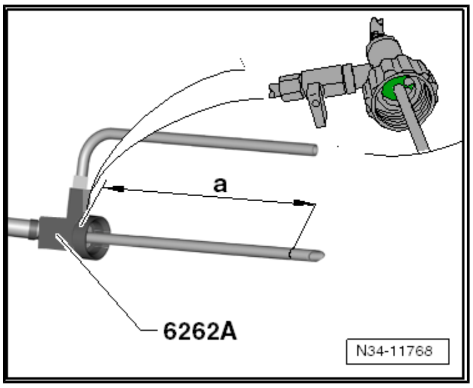
  Gas engines. Refer to ⇒ Engine Mechanical, Fuel Injection and Ignition; Rep. Gr. 21 ; Description and Operation .

  Diesel engines. Refer to ⇒ Engine Mechanical, Fuel Injection and Glow Plug; Rep. Gr. 21 ; Description and Operation .
- Reinstall any vehicle parts which were removed.
- Do not start the engine.
- Change the filter if the oil was dirty. Refer to ⇒ “5.12 Oil Filter”, page 82 .
- Connect the Vehicle Diagnosis Tester .
- Place the Used Oil Collection And Extraction Unit - SMN372500- under the transmission near the plug.
- Remove the plug -arrow- near the pendulum support.



- Measure the length of the pipe, dimension -a- before installing the Adapter for Oil Filling - VAS6262A- to the oil bottle and shorten the pipe, if necessary. Refer to ⇒ page 28 .

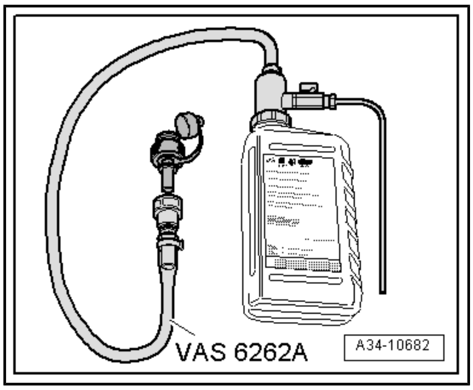
-a- = 210 mm



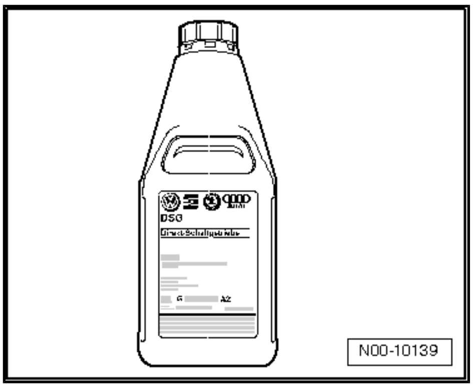
Note

Dimension -a- is measured starting from the shaft (green surface) on the Adapter for Oil Filling - VAS6262A- .

- Install the Adapter for Oil Filling - VAS6262A- into the plug hole hand tight.



- Shake the bottles before opening.
- Fill with 3 liters (3.17 quarts) of transmission oil.
- To change containers, close the shut off lever or hold the Adapter for Oil Filling - VAS6262A- higher than the transmission.



Start the engine and check the fluid level. The Adapter for Oil Filling - VAS6262A- remains installed.

- Check the fluid level and fill if necessary. Refer to ⇒ “1.2 Transmission Oil Level, Checking and Filling”, page 28 .
- Install the noise insulation. Refer to ⇒ Body Exterior; Rep. Gr. 50 ; Removal and Installation .
- Perform a basic setting.

5.10 DSG Transmission Mechatronic - J743- , Transmission Removed

Special tools and workshop equipment required

- ♦ Speed Sender Release Tool - T10465-

Always make sure that no dirt enters an open transmission.

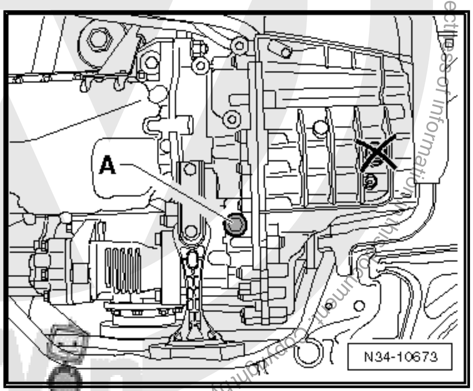
Dirt entering an open transmission can cause a malfunction especially with a open DSG Transmission Mechatronic - J743- and/or oil pump.

In regard to “contaminated oil”, also observe information on when to change the filter. Refer to ⇒ page 4 .

Removing

Up to transmission production date “September 20, 2004”, transmissions with two plugs were installed.

- Remove the plug -A- near the pendulum support.



A plastic overflow tube is located in this hole (with a 8 mm hex socket head, tightening specification: 3 Nm). Its length determines the oil level in the transmission.

- Remove the overflow tube.
- Drain the oil.

In regard to “contaminated oil”, also observe information on when to change the filter. Refer to ⇒ page 4 .

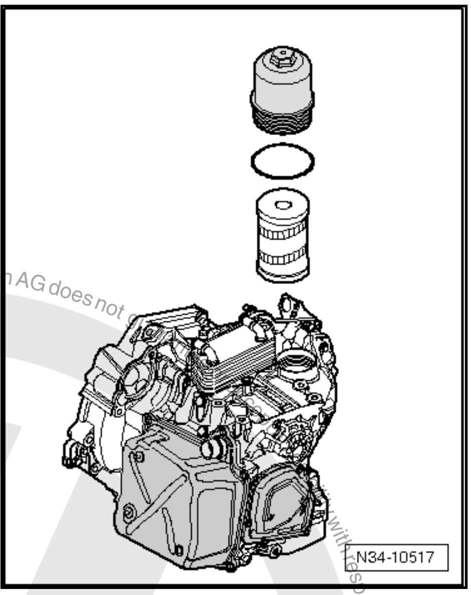
- Install the overflow tube; tightening specification: 3 Nm.

- If it is necessary, remove the oil filter.

There Are Often Uncertainties as to Whether the Filter Must Be Replaced or Not.

For information on when to change the filter. Refer to ⇒ page 4 , this can help when making that decision.

- Install the new filter with the seat facing downward and tighten the housing to 20 Nm.
- After repairing, you do not have to change the filter again when filling the oil.

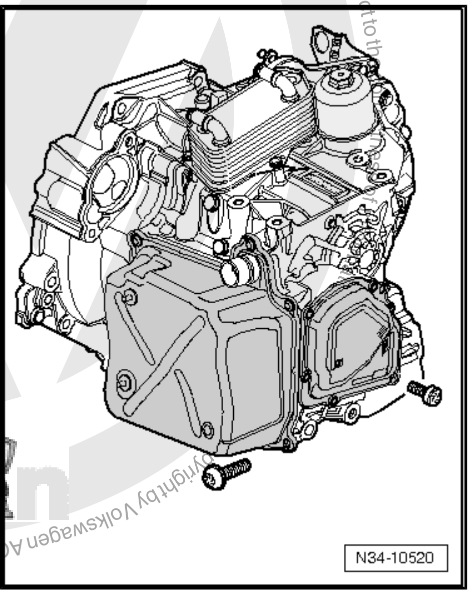


- Remove both the small and large covers.

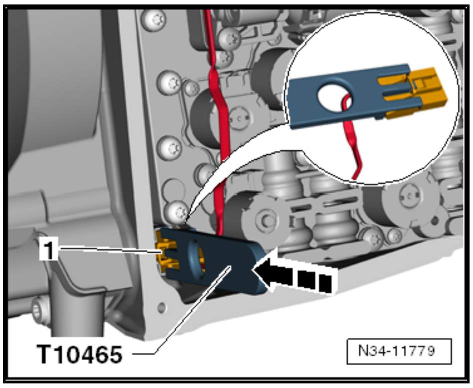
Always replace the small oil pump cover and the bolts for the large cover.

Replace the seal on the large cover.

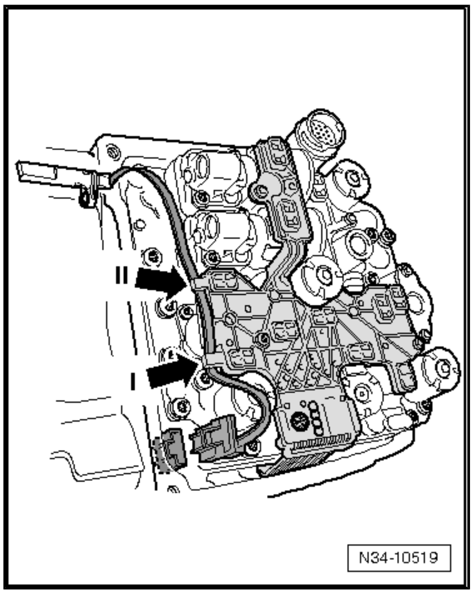
Before handling the DSG Transmission Mechatronic - J743- , touch a grounded object. Refer to “Electrical Components” ⇒ page 5 .



- Disconnect the connector -1- from the Transmission Input Speed Sensor - G182- and Clutch Oil Temperature Sensor - G509- using the Speed Sender Release Tool - T10465- .
- First, remove the wire from the lower clip -arrow I-.

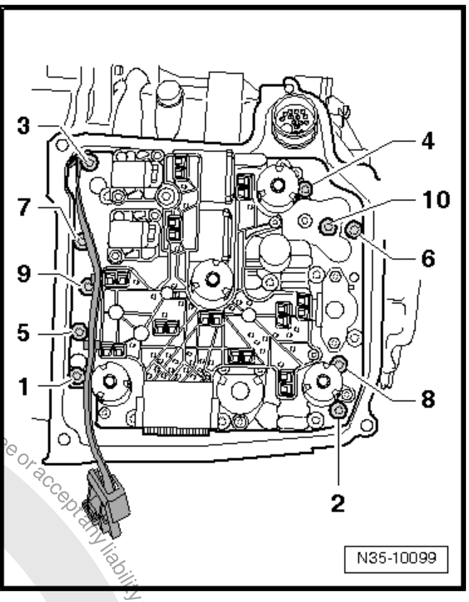


– Then remove the wire from the upper clip -arrow II- and lay it aside. Do not kink the wire.



– Remove the bolts diagonally. Start with the bolt -1-.

Replace all 10 bolts.



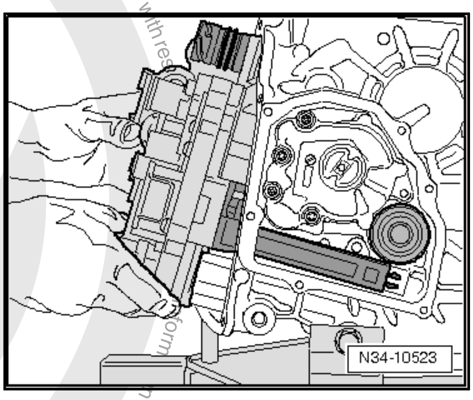
– Remove the DSG Transmission Mechatronic - J743- .

When handling the DSG Transmission Mechatronic - J743- , be particularly aware of the long sensor arm.

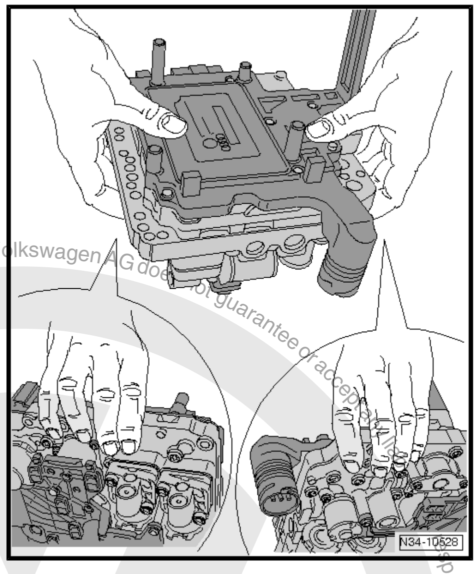
⚠ Caution

Never lift the Mechatronic unit by the sensor arm and never let it rest on the arm.

Replace the DSG Transmission Mechatronic - J743- if the Sensor Arm Gets Damaged.



Store the DSG Transmission Mechatronic - J743- Properly

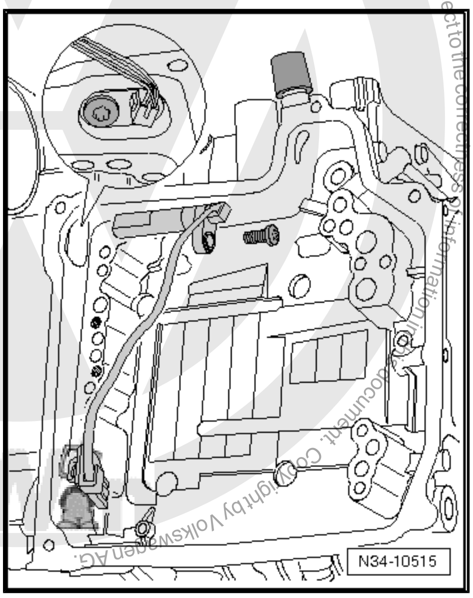


Installing

> Caution
>
> *Never lift the DSG Transmission Mechatronic - J743- by the sensor arm and never let it rest on the arm.*

Replace the DSG Transmission Mechatronic - J743- if the Sensor Arm Gets Damaged.

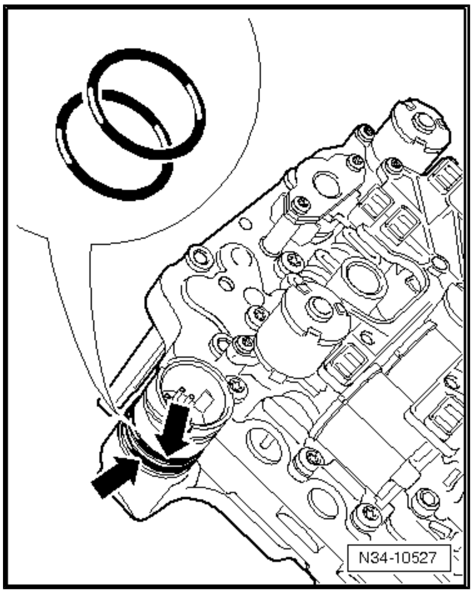
- Make sure the Transmission Input Speed Sensor - G182- and Clutch Oil Temperature Sensor - G509- are installed before installing the DSG Transmission Mechatronic - J743- .



- Replace both O-rings if reinstalling the old DSG Transmission Mechatronic - J743- .

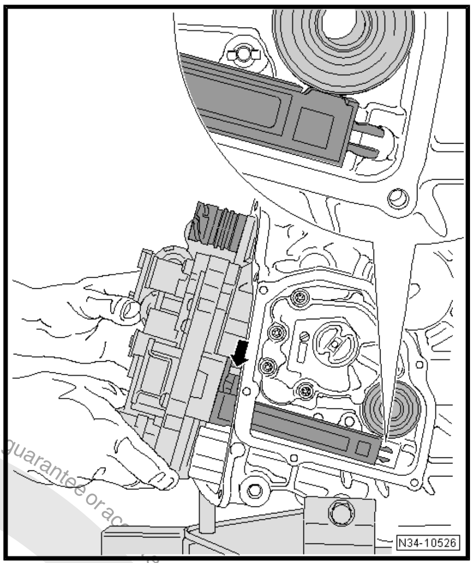
(A new DSG Transmission Mechatronic - J743- already has new O-rings.)

- Coat the O-rings with Direct Shift Gearbox (DSG®) oil.



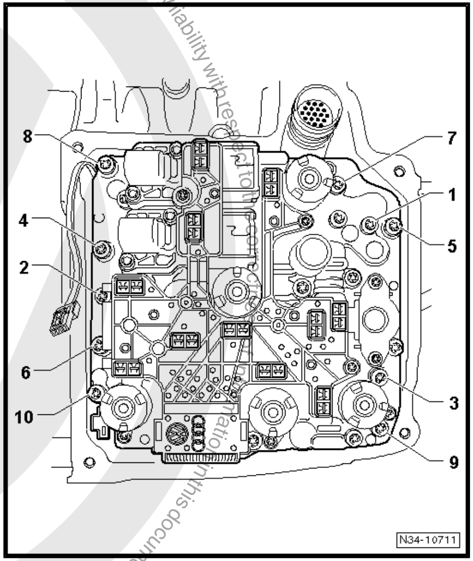
- Carefully mount the DSG Transmission Mechatronic - J743- onto the alignment pins -arrow-. The goal is for the sensor arm to be in its installed position.
- Do not pinch the wire.

Make Sure the Wire Does Not Get Pinched.

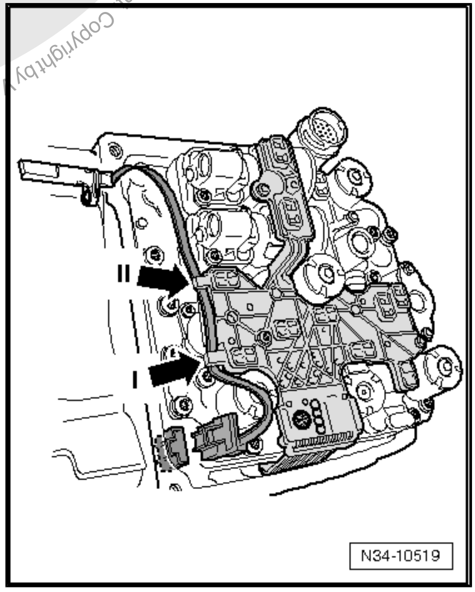


Replace all 10 bolts.

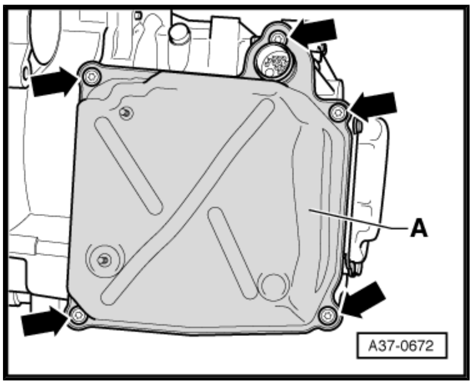
- Install all the bolts by hand.
- Tighten all 10 bolts diagonally to 5 Nm. Then tighten them an additional 90° (1/4) turn following the same sequence. Start with the bolt -1-.



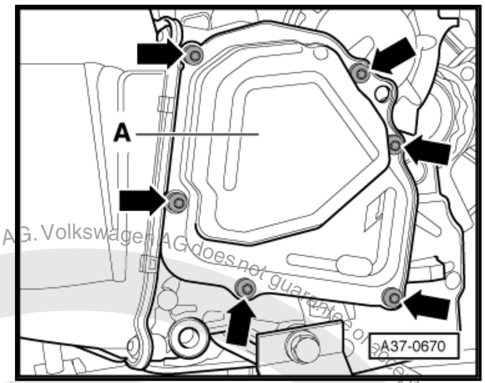
- Install the Transmission Input Speed Sensor - G182- and Clutch Oil Temperature Sensor - G509- wire under the upper clip -II- first. Then under the lower clip -I-.
- Press the connector onto the DSG Transmission Mechatronic - J743- .
- Place the cover -A- over the DSG Transmission Mechatronic - J743- without pinching any wires.



– Install the new bolts -arrows- and tighten them to 16 Nm diagonally and in several steps.



– Set the new oil pump cover -A- in place and tighten the bolts -arrows- in a diagonal sequence and in stages to 8 Nm.



After Installing the Transmission.

– Check the fluid level and fill as necessary. Refer to ⇒ “1.3 DSG® Oil, Draining and Filling”, page 30 .

– Connect the Vehicle Diagnosis Tester .

– Perform a basic setting.

5.11 Transmission Input Speed Sensor - G182- and Clutch Oil Temperature Sensor - G509-

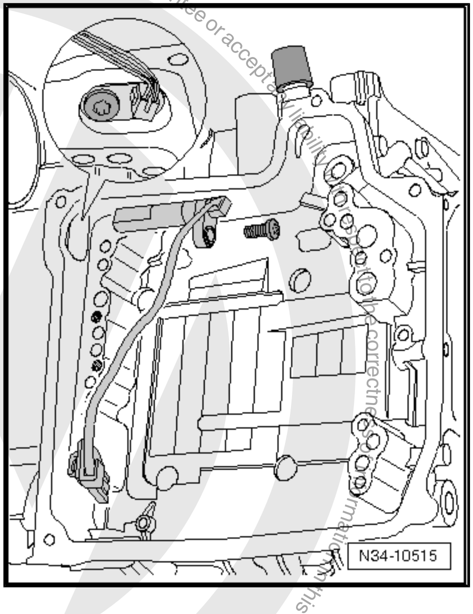
Short Description

Both sensors are a single component and can only be replaced together. They are coated with oil in the transmission near the Direct Shift Gearbox (DSG®) clutch. Before removing, the DSG Transmission Mechatronic - J743- must be removed.

Often, the sensor wire is pulled. This damages it. If the wire was pulled, then the sensor must be replaced.

Removing

– Remove the DSG Transmission Mechatronic - J743- . Refer to ⇒ “5.9 DSG Transmission Mechatronic J743 , Transmission Installed”, page 69 .



Do Not Pull on the Wire.

– Remove the bolt and carefully pry out the sensor with a screwdriver or pliers.

Installing

Install an old sensor only if:

- The sensor is working correctly.
- The wire was not pulled out during removal.

If this is not the case, you should install a new sensor.

– Coat the sensor with DSG® oil and then install it.

– Tighten the bolt to 10 Nm.

– Install the DSG Transmission Mechatronic - J743- . Refer to ⇒ “5.9 DSG Transmission Mechatronic J743 , Transmission Installed”, page 69 .

Do Not Pinch the Wire When Installing the DSG Transmission Mechatronic - J743- !

5.12 Oil Filter

Note

♦ *The transmission oil filter usually does not need to be replaced.*

♦ *Changing the transmission fluid filter “yes or no”. Refer to ⇒ page 4 .*

Removing

– Move the selector lever into the “P” position.

– Remove the air filter housing. Refer to one of the following:

Gas engines. Refer to ⇒ Engine Mechanical, Fuel Injection and Ignition; Rep. Gr. 24 ; Description and Operation .

Diesel engines. Refer to ⇒ Engine Mechanical, Fuel Injection and Glow Plug; Rep. Gr. 24 ; Description and Operation .

– Remove the battery and battery tray. Refer to ⇒ Electrical Equipment; Rep. Gr. 27 ; Removal and Installation .

Note

♦ *A little bit of oil remains inside the filter housing. This will drain out once the filter housing is removed.*

♦ *Lay some cloths down near the filter before removing it.*

– Loosen the filter housing -arrow- approximately seven turns.

– Wait 10 seconds.

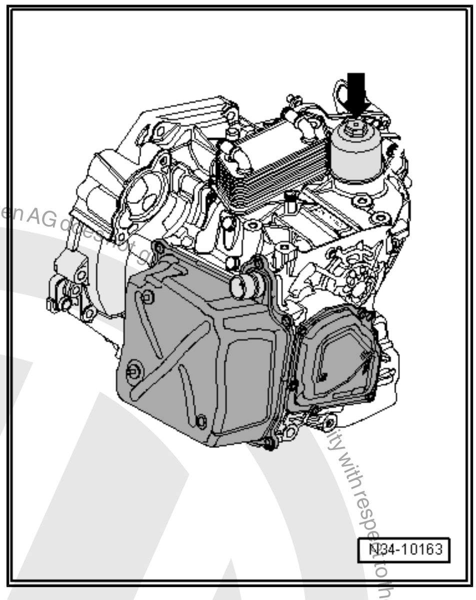
This way the oil can drain from the filter housing back into the transmission.

– Remove the filter housing and filter.

Installing

Install in the reverse order of removal. Pay attention to the following:

– Clean thoroughly any areas on the transmission that get wet with oil.

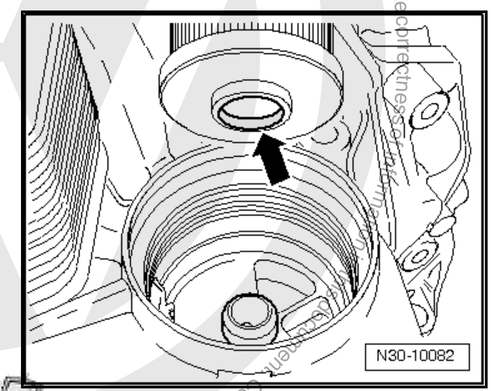


– Install the oil filter with the collar -arrow- on the bottom.

– Install the oil filter housing and tighten it to 20 Nm.

Further installation is performed in the reverse sequence.

– Check the oil level and fill as necessary. Refer to ⇒ “1.2 Transmission Oil Level, Checking and Filling”, page 28 .



5.13 Transmission, Removing

Short Description

The transmission is remove downward by itself.

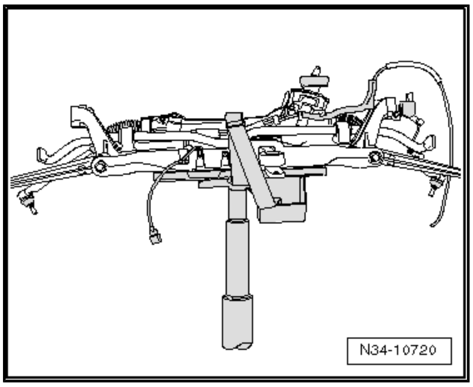
From above:

The battery, air filter housing and starter are removed. The coolant hoses are clamped off. Before removing the subframe, the engine and transmission must be supported.

From underneath:

The subframe, with the pendulum support, steering gear and both control arms are removed together.

To remove the subframe. Refer to ⇒ Suspension, Wheels, Steering; Rep. Gr. 40 ; Removal and Installation . If done correctly, the subframe can be removed and installed without the customer experiencing increased tire wear later. It is recommended to read this information prior to removing the transmission. This way, the subframe can be secured and removed correctly.



The Locating Pins - T10096- will be needed for this.

If the subframe is not secured using the locating pins, then later a axle alignment will be necessary.

In This Case, an Axle Alignment Is Unnecessary. It Would Be a Lot of Work and an Unnecessary Charge!

Special tools and workshop equipment required

- Engine Support Bridge - 10-222A-
- Transmission Support - Mounting Plate 42A - 3282/42A-
- Engine Support Bridge - Engine Support Feet - 10-222A/8-
- Engine Support Bridge - Engine Support 3 - 10-222A/3-
- Transmission Support - 3282-
- Insert Tool - 18 mm - T10179-
- Engine Support Bridge - Gearbox Bracket - T10346-
- Hose Clamps - Up to 40 mm - 3093-, if not available, use Hose Clamps - Up to 25 mm - 3094-
- Engine/Gearbox Jack - VAG1383A-
- Tensioning Strap - T10038-
- Engine Support Bridge - Spindle Spacer - 10-222A/17-

Removing

– Lift the vehicle, all 4 lift points of the hoist are at the same height.

– Move the selector lever into the “P” position.

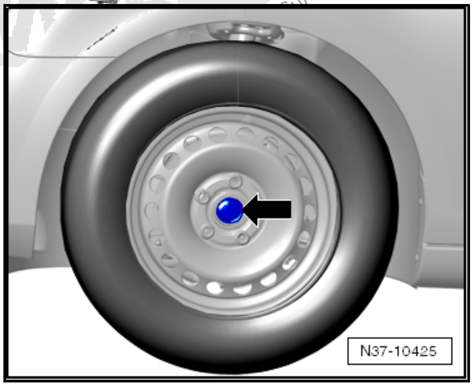
Note

Do not lower the vehicle onto the floor after loosening the drive axle bolt.

– Apply the brakes in order to remove the left drive axle bolt -arrow-. (2nd technician required).

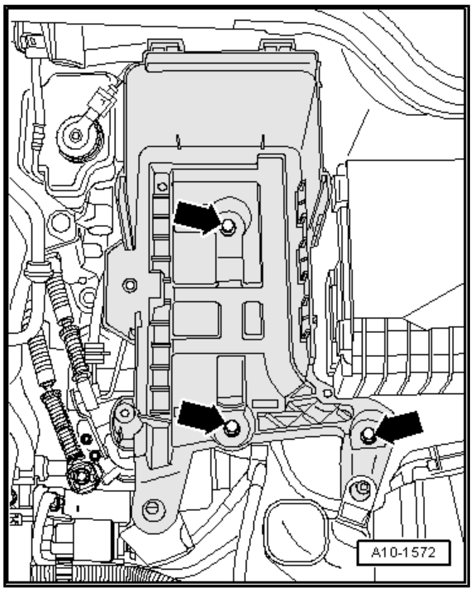
– Remove both front wheels.

– Remove the air filter housing. Refer to ⇒ Engine Mechanical, Fuel Injection and Ignition; Rep. Gr. 24 ; Removal and Installation .



– Remove the battery, the battery tray bolts -arrows- and tray.

– Remove the starter. Refer to ⇒ Electrical Equipment; Rep. Gr. 27 ; Removal and Installation .



- Remove the selector lever cable from the transmission.

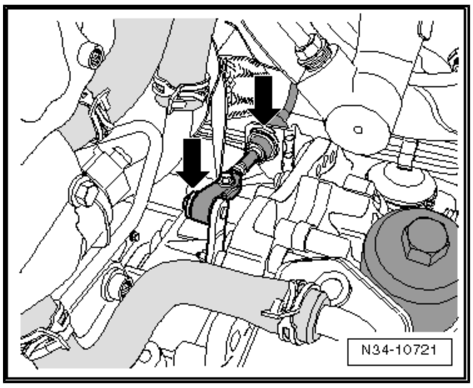
Use pliers to remove the lock washer from the cable bracket. Do not use a sharp tool otherwise the rubber grommet on the cable may get damaged.

Both lock washers -arrows- must later be replaced when adjusting the cable.

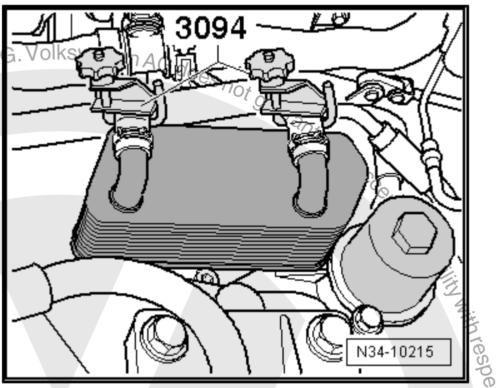
Remove the cable from the transmission cable bracket. Do not bend the cable.

You can also slide the cable back slightly from the cable bracket and remove it later when lowering the transmission. Watch the cable when lowering the transmission.

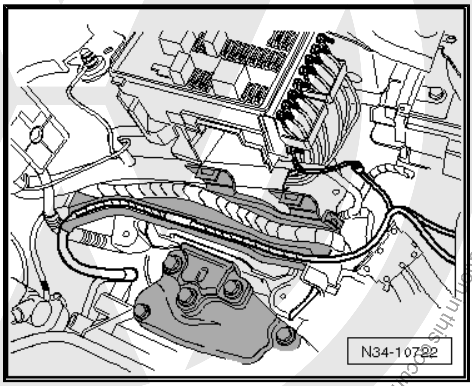
Later, install the small lock washer only after having checked and adjusted the cable. Refer to ⇒ “4.1 Selector Lever Cable, Checking”, page 47 .



- Clamp off the coolant hoses to the oil cooler using either the Hose Clamps - Up to 40 mm - 3093- or the Hose Clamps - Up to 25 mm - 3094- and remove the hoses.
- Release the Mechatronic connector retainer by rotating it and disconnect the connector.
- Remove the wire bracket from the large transmission cover (quantity: 2 M6 nuts).

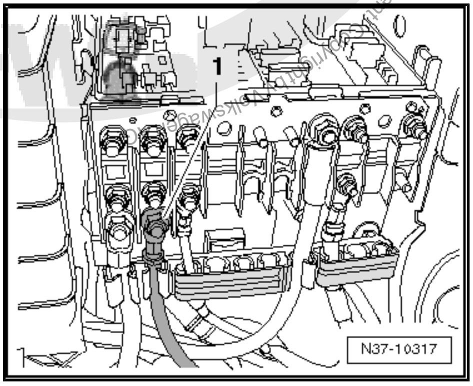


- Disconnect the wiring harness from the subframe from underneath.



- Remove the nut -arrow- and the cable -1- from the E-box.
- Remove the nut -arrow- and the ground wire -2-.
- Disconnect the connector -3-.

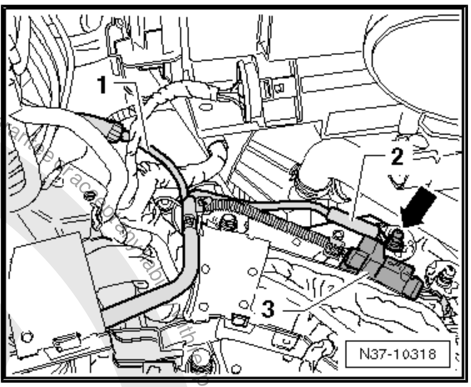
This wiring harness will be removed later with the subframe. this way, you avoid time consuming work on the steering gear and heat shield.



- Remove all upper engine to transmission bolts. The Insert Tool - 18 mm - T10179- is especially good for this.
- Remove the filler pieces from both fender upper edges.
- If there are any hose or wire connections are located near the engine lifting eyes: disconnect these now.
- Disconnect the steering gear from the steering column.

Always move the steering wheel into the center position beforehand. Engage the steering wheel lock. Information regarding tightening the bolts is also contained here.

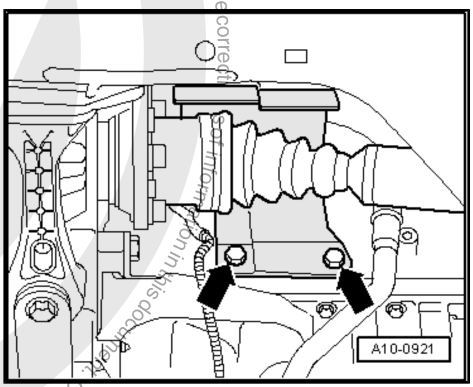
It Is Advisable to Complete the Work under the Vehicle Now. This Prevents the Weight of the Engine from Resting on the Engine Support Bridge and Therefore on the Body for a Long Period of Time.



– Remove the noise insulation and lower section of the left front wheel housing liner, if necessary. Refer to the following:

For the noise insulation. Refer to ⇒ Body Exterior; Rep. Gr. 50 ; Removal and Installation

For the wheel housing liner. Refer to ⇒ Body Exterior; Rep. Gr. 66 ; Removal and Installation

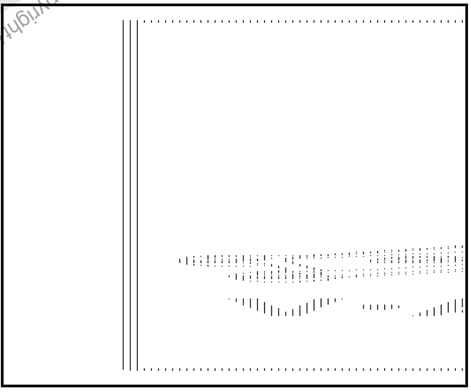


– Remove the right drive axle heat shield bolts -arrows- and shield, if equipped.

– Remove the drive axle from the transmission and carefully move it to the side.

Do not damage the surface of the drive axles. For this reason, tie straps made out of plastic or both Tensioning Strap - T10038- are good to use.

– Remove the pendulum support bolts from the transmission.



The subframe and the pendulum support will be removed together with both control arms and the steering gear.

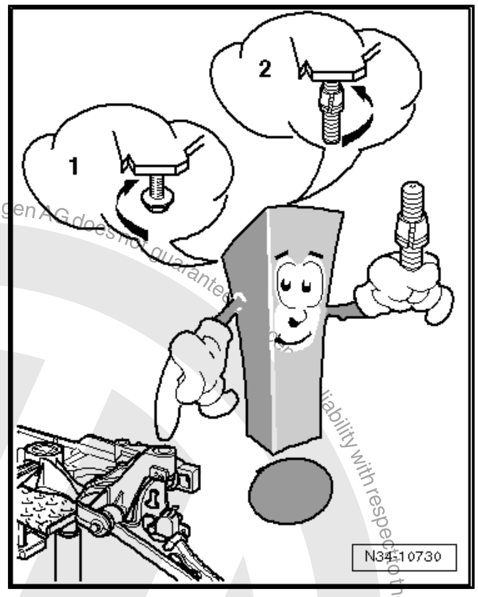
To remove the subframe. Refer to ⇒ Suspension, Wheels, Steering; Rep. Gr. 40 ; Removal and Installation . If done correctly, the subframe can be removed and installed without the customer experiencing increased tire wear later. It is recommended to read this information prior to removing the transmission. This way, the subframe can be secured and removed correctly.

If the Subframe Is Not Secured, Then an Axle Alignment Will Be Necessary.

Secure the subframe. Refer to ⇒ Suspension, Wheels, Steering; Rep. Gr. 40 ; Description and Operation .

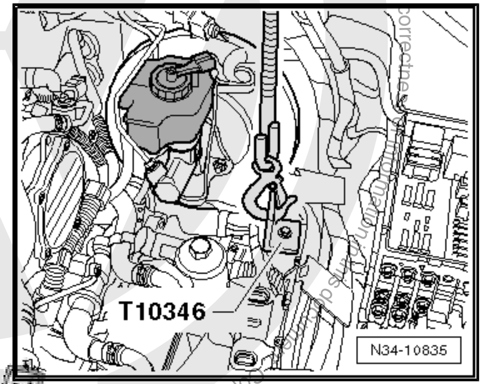
When Removing the Subframe.

– Install one Locating Pins - T10096- -2- as soon as one bolt -1- is removed.



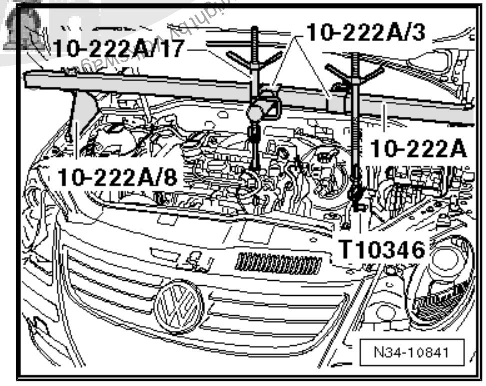
– Install the Engine Support Bridge - Gearbox Bracket - T10346- to the longitudinal member.

(to the rear of the 3 bolt holes for the battery housing)



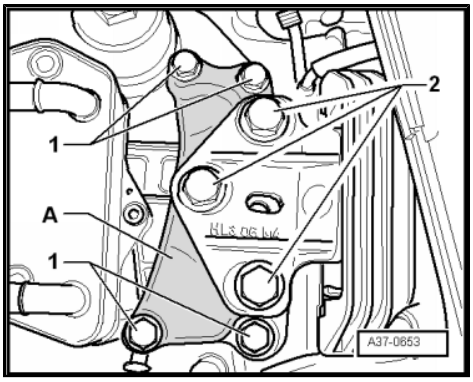
– Support the engine and transmission. Do not lift up yet.

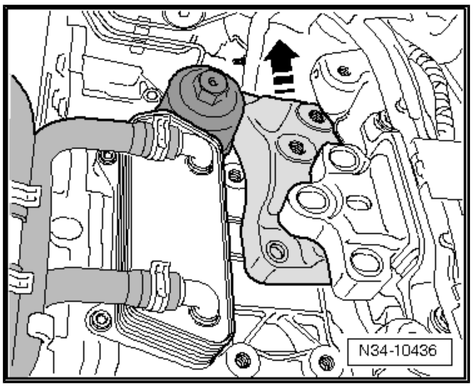
- ♦ Engine Support Bridge - 10-222A-
- ♦ Engine Support Bridge - Engine Support 3 - 10-222A/3-
- ♦ Engine Support Bridge - Engine Support Feet - 10-222A/8- the flat side goes toward the engine compartment
- ♦ Engine Support Bridge - Gearbox Bracket - T10346-
- ♦ Use the Engine Support Bridge - Spindle Spacer - 10-222A/ 17- on the front spindle



– Remove the transmission mount to transmission mount bracket bolts -2- and the transmission mount bracket -A- to transmission bolts -2-

– Then, lower the engine and transmission slightly using the Engine Support Bridge - 10-222A- spindles until the bracket can be removed.





Approximately 5 turns is sufficient to remove the bracket in direction of -arrow-.

The transmission is disconnected from the engine in this position.

- Align the Transmission Support - 3282- with the Transmission Support - Mounting Plate 42A - 3282/42A- .
- Guide the Engine/Gearbox Jack - VAG1383A- under the transmission and support the transmission. Do not lift up yet.
- Remove all remaining engine to transmission bolts.
- Separate the transmission from the engine while being careful of the selector lever cable and lower the transmission.

Transport the transmission and secure it to the assembly stand. Refer to
⇒ “5.22 Transmission, Transporting and Securing to the Assembly Stand”, page 130 .

Install the transmission. Refer to
⇒ “5.23 Transmission, Installing”, page 131 .

5.14 Transmission, Removing

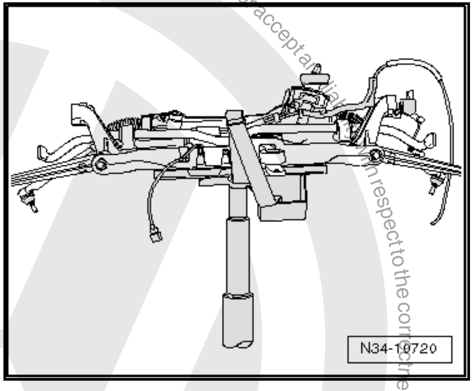
Short Description

The transmission is remove downward by itself.

From above:

The battery, air filter housing and starter are removed. The coolant hoses are clamped off. The transmission mount is removed and the engine and transmission are supported.

From underneath:



The subframe, with the pendulum support, the steering gear and both control arms are removed together.

To remove the subframe. Refer to ⇒ Suspension, Wheels, Steering; Rep. Gr. 40 ; Removal and Installation . If done correctly, the subframe can be removed and installed without the customer experiencing increased tire wear later. It is recommended to read this information prior to removing the transmission. This way, the subframe can be secured and removed correctly.

The Locating Pins - T10096- will be needed.

If the subframe is not secured by the pins, then late an axle alignment will be necessary.

In This Case, an Axle Alignment Is Unnecessary. It Would Be a Lot of Work and an Unnecessary Charge!

Special tools and workshop equipment required

- Engine Support Bridge - 10-222A-
- Transmission Support - Mounting Plate 42A - 3282/42A-
- Engine Support Bridge - Engine Support Feet - 10-222A/8-
- Engine Support Bridge - Engine Support 18 - 10-222A/18-
- Transmission Support - 3282-
- Insert Tool - 18 mm - T10179-
- Engine Support Bracket - T10338-
- Hose Clamps up to 40 mm - 3093- , if not available, use Hose Clamps - Up to 25 mm - 3094-
- Engine/Gearbox Jack - VAG1383A-

- Tensioning Strap - T10038-
- Engine Support Bridge - Spindle Spacer - 10-222A/17-

Removing

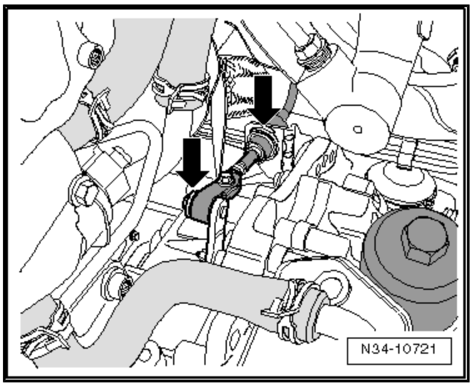
- Lift the vehicle, all 4 lift points for the hoist must be at the same height.
- Move the selector lever into the “P” position.
- Remove both front wheels.

In comparison to other vehicles, the left drive axle does not need to be removed. It is sufficient to lay it aside on the vehicle later and tie it securely to the underbody with cable ties.

- Disconnect the battery. Refer to ⇒ Electrical Equipment; Rep. Gr. 27 ; Removal and Installation .
- Remove the air filter housing. Refer to ⇒ Engine Mechanical, Fuel Injection and Ignition; Rep. Gr. 24 ; Description and Operation .
- Remove the air filter housing bracket from the longitudinal member.
- Remove the starter. Refer to ⇒ Electrical Equipment; Rep. Gr. 27 ; Removal and Installation .
- Remove the noise insulation and lower section of the left front wheel housing liner, if necessary. Refer to the following:

  For the noise insulation. Refer to ⇒ Body Exterior; Rep. Gr. 50 ; Removal and Installation .

  For the wheel housing liner. Refer to ⇒ Body Exterior; Rep. Gr. 66 ; Removal and Installation .



- Remove the selector lever cable from the transmission.

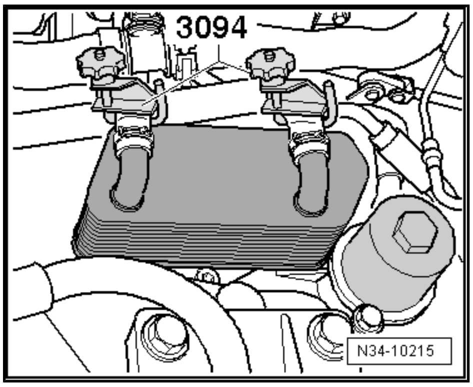
Use pliers to remove the lock washer from the cable bracket. Do not use a sharp tool otherwise the rubber grommet on the cable may get damaged.

Both lock washers -arrows- must later be replaced when adjusting the cable.

Remove the cable from the transmission cable bracket. Do not bend the cable.

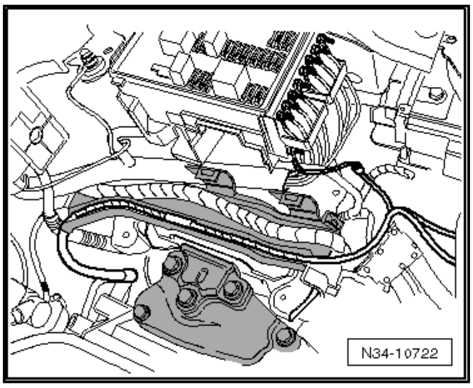
You can also slide the cable back slightly from the cable bracket and remove it later when lowering the transmission. Watch the cable when lowering the transmission.

Later, install the small lock washer only after having checked and adjusted the cable. Refer to ⇒ “4.1 Selector Lever Cable, Checking”, page 47 .

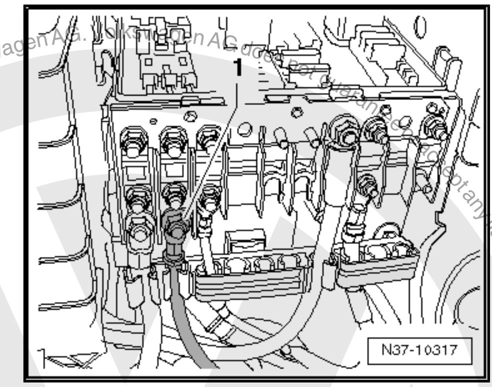


- Clamp off the coolant hoses to the oil cooler using either the Hose Clamps - Up to 40 mm - 3093- or the Hose Clamps - Up to 25 mm - 3094- and disconnect the hoses.
- Release the Mechatronic connector retainer by rotating and remove the connector.
- Remove the wire bracket from the large transmission cover (quantity: 2 M6 nuts).

– Disconnect the wiring harness from the subframe from underneath.



– Remove the nut -1- and the cable -1- from the E-box.



– Remove the nut -arrow- and the ground wire -2-.

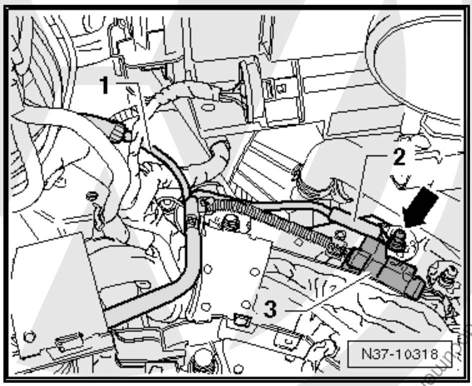
– Disconnect the connector -3-.

This wiring harness will be removed later with the subframe. This way, you avoid time consuming work on the steering and heat shield.

– Remove all upper engine to transmission bolts. The Insert Tool - 18 mm - T10179- is especially good for this.

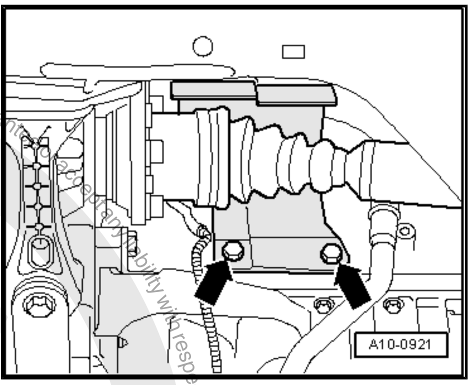
– If any hose and wire connections are located near the engine lifting eyes: disconnect these now.

– Disconnect the steering gear from the steering column. Refer to ⇒ Suspension, Wheels, Steering; Rep. Gr. 48 ; Removal and Installation .



Always move the steering wheel to the center position beforehand. Engage the steering wheel lock.

It Is Advisable to Complete the Work under the Vehicle Now. This Prevents the Weight of the Engine from Resting on the Engine Support Bridge and Therefore on the Body for a Long Period of Time.



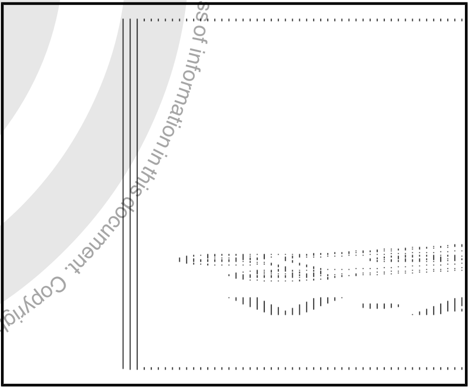
- Remove the right drive axle heat shield bolts -arrows- and shield, if equipped.
- Remove the drive axle from the transmission and carefully move it to the side.

Do not damage the surface of the drive axles. For this reason, tie straps made out of plastic or both Tensioning Strap - T10038- are very good to use.

- Remove the secondary air injection pump motor and the bracket from the front of the engine and move them to the side.

It is not necessary to disconnect any lines or remove the pump.

- Remove the ball joints from the control arms.
- Disconnect the connector from left front level control system sensor.
- Remove the pendulum support bolts from the transmission.



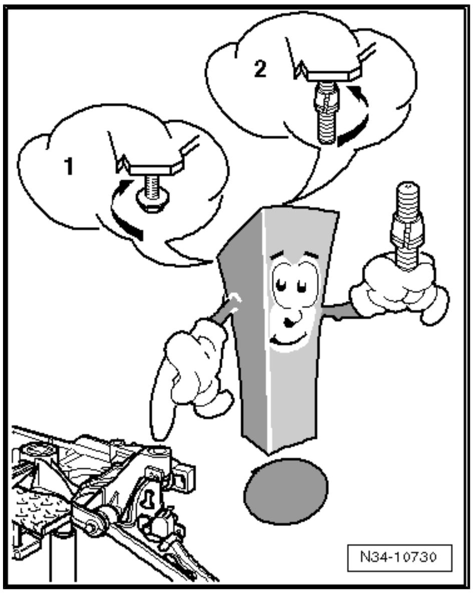
The subframe and the pendulum support will be removed together with both control arms and the steering gear.

To remove the subframe. Refer to ⇒ Suspension, Wheels, Steering; Rep. Gr. 40 ; Removal and Installation . If done correctly, the subframe can be removed and installed without the customer experiencing increased tire wear later. It is recommended to read this information prior to removing the transmission. This way, the subframe can be secured and removed correctly.

If the Subframe Is Not Secured, Then an Axle Alignment Will Be Necessary.

Secure the subframe. Refer to ⇒ Suspension, Wheels, Steering; Rep. Gr. 40 ; Description and Operation .

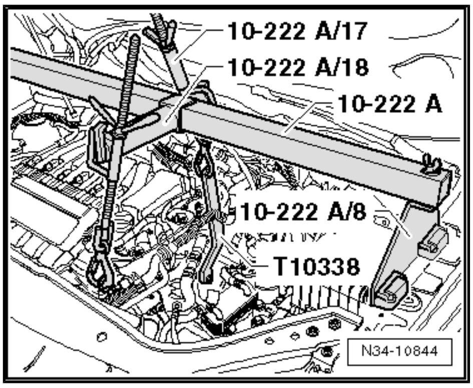
When Removing the Subframe.



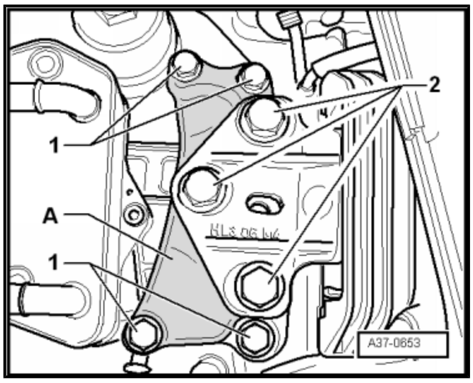
- Install one Locating Pins - T10096- -2- as soon as one bolt -1- is removed.

After the subframe is removed, the engine is supported with the transmission.

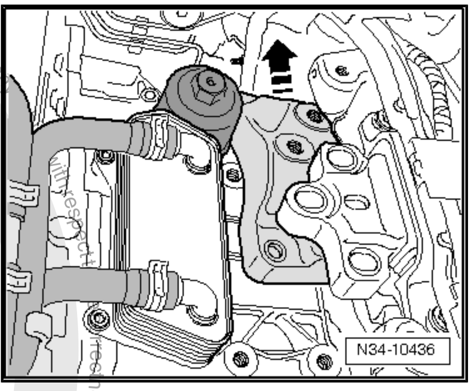
- Only support the engine and transmission, do not raise. Move the short spindle and the Engine Support Bridge - Spindle Spacer - 10-222A/17- to the rear.
  - Engine support bridge - 10-222A-
  - Engine Support Bridge - Engine Support 18 - 10-222A/18-
  - Engine Support Bridge - Engine Support Feet - 10-222A/8- flat side toward the engine compartment
  - Engine Support Bracket - T10338-
  - Use the Engine Support Bridge - Spindle Spacer - 10-222A/17- on the rear spindle.



- Remove the transmission mount to transmission mount bracket bolts -2- and the transmission mount bracket -A- to transmission bolts -1-.
- Then, lower the engine and transmission slightly using the Engine Support Bridge - 10-222A- spindles until the bracket can be removed.



Approximately 6 turns is sufficient to remove the bracket -arrow-.



The transmission is disconnected from the engine in this position.

- Align the Transmission Support - 3282- with the Transmission Support - Mounting Plate 42A - 3282/42A- .
- Guide the Engine/Gearbox Jack - VAG1383A- under the transmission and support it. Do not lift up yet.
- Remove all remaining engine to transmission bolts.
- Separate the transmission from the engine while being careful of selector lever cable and lower the transmission.

Transport the transmission and secure it to the assembly stand. Refer to
⇒ “5.22 Transmission, Transporting and Securing to the Assembly Stand”, page 130 .

Install the transmission. Refer to
⇒ “5.23 Transmission, Installing”, page 131 .

5.15 Transmission, Removing

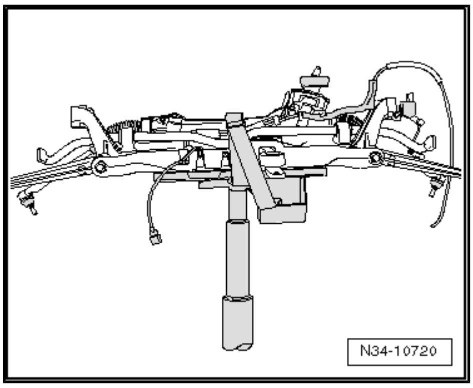
Short Description

The transmission is remove downward by itself.

From above:

The battery, air filter housing and starter are removed. The coolant hoses are clamped off. The transmission mount is removed and the engine and transmission are supported.

From underneath:



The subframe, with the pendulum support, the steering gear and both control arms are removed together.

To remove the subframe. Refer to ⇒ Suspension, Wheels, Steering; Rep. Gr. 40 ; Removal and Installation . If done correctly, the subframe can be removed and installed without the customer experiencing increased tire wear later. It is recommended to read this information prior to removing the transmission. This way, the subframe can be secured and removed correctly.

The Locating Pins - T10096- will be needed.

If the subframe is not secured by the pins, then an axle alignment will be necessary later.

In This Case, an Axle Alignment Is Unnecessary. It Would Be a Lot of Work and an Unnecessary Charge!

Special tools and workshop equipment required

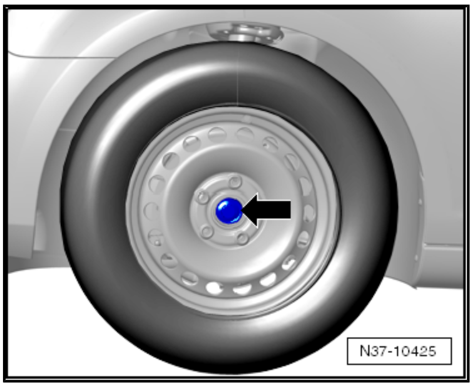
- Engine Support Bridge - 10-222A-
- Transmission Support - Mounting Plate 42A - 3282/42A-
- Engine Support Bridge - Gearbox Adapter - 10-222A/13-
- Hose Clamps up to 40 mm - 3093- , if not available, use Hose Clamps - Up to 25 mm - 3094-
- Transmission Support - 3282-
- Insert Tool - 18 mm - T10179-
- Transmission Support - Pins 29 - 3282/29-
- Adjustment Plate - 3282/59-
- Engine/Gearbox Jack - VAG1383A-
- Tensioning Strap - T10038-
- Engine Support - Bracket w/Spindle and Hook - 10-222A/10-

Removing

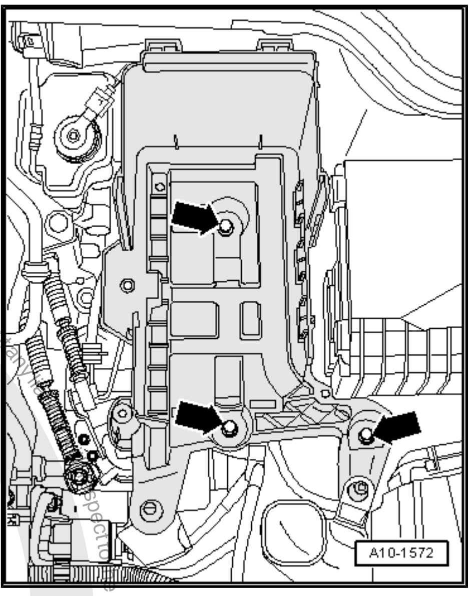
- Lift the vehicle, all four lift points of the hoist must be at the same height.
- Move the selector lever into the “P” position.

Note

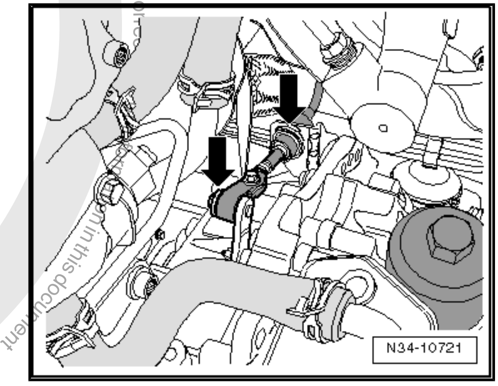
Do not lower the vehicle onto the floor after loosening the drive axle bolt.



- Press the brake pedal in order to remove the left drive axle bolts -arrow- (second technician required).
- Remove the air filter housing. Refer to ⇒ Engine Mechanical, Fuel Injection and Ignition; Rep. Gr. 24 ; Removal and Installation .



- Remove the battery, the battery tray bolts -arrows- and tray.
- Remove the starter. Refer to ⇒ Electrical Equipment; Rep. Gr. 27 ; Removal and Installation .



- Remove the selector lever cable from the transmission.

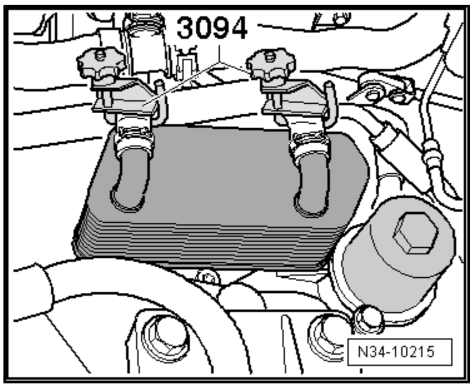
Use pliers to remove the lock washer from the cable bracket. Do not use a sharp tool otherwise the rubber grommet on the cable may get damaged.

Both lock washers -arrows- must later be replaced when adjusting the cable.

Remove the cable from the transmission cable bracket. Do not bend the cable.

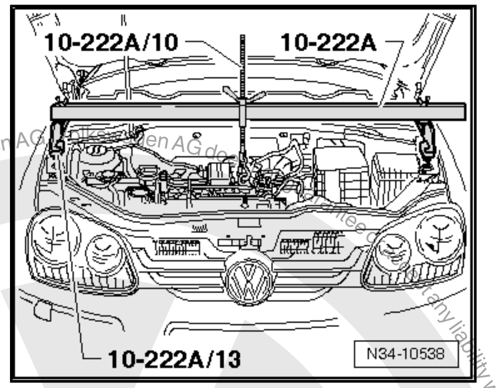
You can also slide the cable back slightly from the cable bracket and remove it later when lowering the transmission. Watch the cable when lowering transmission.

Later, install the small lock washer only after having checked and adjusted the cable. Refer to ⇒ “4.1 Selector Lever Cable, Checking”, page 47 .

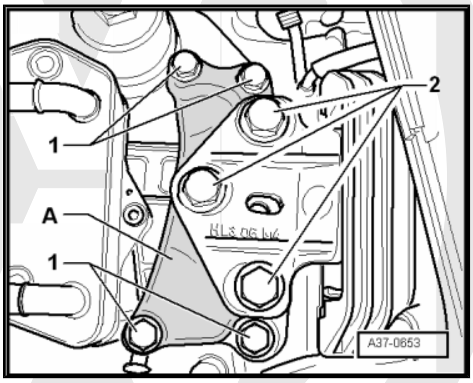


- Clamp off the coolant hoses to the oil cooler using the Hose Clamps - Up to 40 mm - 3093- or the Hose Clamps - Up to 25 mm - 3094- and remove the hoses.
- Remove the wire bracket from the large transmission cover (2 M6 nuts).
- Release the Mechatronic connector retainer by rotating and remove connector.
- Remove all the upper engine to transmission bolts. Insert Tool - 18 mm - T10179- is especially good for this.
- Remove the filler pieces from both fender upper edges.
- Disconnect any hoses and wires in the area of the lifting eye.

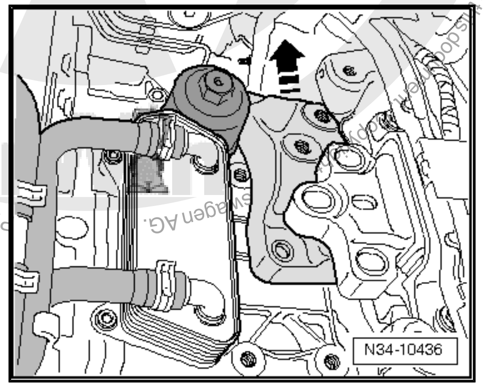
- Support the engine and transmission using the Engine Support Bridge - 10-222A- , the Engine Support - Bracket w/ Spindle and Hook - 10-222A/10- and the Engine Support Bridge - Gearbox Adapter - 10-222A/13- . Do not lift up yet.



- Remove the transmission mount to transmission mount bracket bolts -2- and the transmission mount bracket -A- to transmission mount bolts -1-.
- Then, lower the engine and transmission slightly using the Engine Support Bridge - 10-222A- spindle so the bracket can be removed.



Remove the bracket in direction of -arrow-.



- Remove the noise insulation and lower section of the left front wheel housing liner if necessary. Refer to the following:

  For the noise insulation. Refer to ⇒ Body Exterior; Rep. Gr. 50 ; Description and Operation .

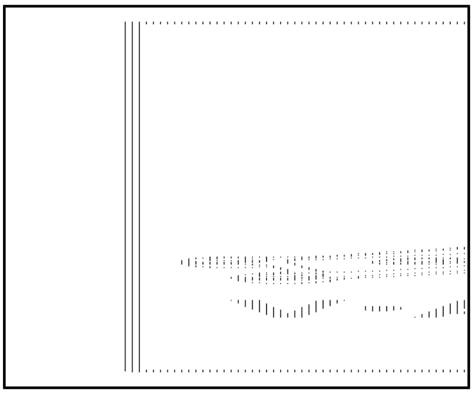
  For the wheel housing liner. Refer to ⇒ Body Exterior; Rep. Gr. 66 ; Removal and Installation .
- Remove the drive axle from the transmission and carefully move it to the side.

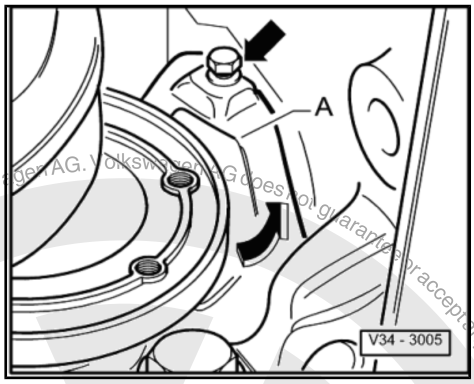
Do not damage the surface of the drive axles. For this reason, tie straps made out of plastic or both Tensioning Strap - T10038- are very good to use.

You can remove the left drive axle if you also remove the subframe.

Remove the Subframe. Refer to ⇒ Suspension, Wheels, Steering; Rep. Gr. 40 ; Removal and Installation .

When removing the subframe if done correctly, the subframe can be removed and installed without the customer experiencing increased tire wear later. It is recommended to read this information prior to removing the transmission. This way, the subframe can be secured and removed correctly.





– A small, additional cover plate (above the right axle flange) is located on the engine/transmission intermediate plate. Remove the cover plate -A-.

– Align the Transmission Support - 3282- with the Transmission Support - Mounting Plate 42A - 3282/42A- .

– Guide the Engine/Gearbox Jack - VAG1383A- under the transmission and support it. Do not lift up yet.

The transmission is disconnected from the engine in this position.

– Remove all remaining engine to transmission bolts.

– Separate the transmission from the engine while being careful of the selector lever cable and lower the transmission.

Transport the transmission and secure it to the assembly stand. Refer to
⇒ “5.22 Transmission, Transporting and Securing to the Assembly Stand”, page 130 .

Install the transmission. Refer to
⇒ “5.23 Transmission, Installing”, page 131 .

5.16 Transmission, Removing

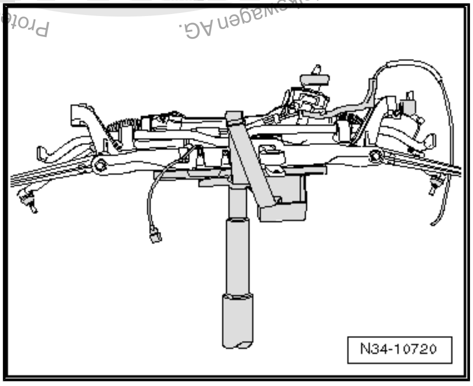
Short Description

The transmission is remove downward by itself.

From above:

The air filter housing and starter are removed. Also the wiring harness, which comes from the bottom of the subframe, is disconnected so that the subframe can be removed later. The coolant hoses are clamped off. The transmission mount is removed and the engine and transmission are supported.

From underneath:



The subframe is removed with the pendulum support, both control arms and the steering gear.

When removing the subframe. Refer to ⇒ Suspension, Wheels, Steering; Rep. Gr. 40 ; Removal and Installation . If done correctly, the subframe can be removed and installed without the customer experiencing increased tire wear later. It is recommended to read this information prior to removing the transmission. This way, the subframe can be secured and removed correctly.

If the Subframe Is Not Secured, Then an Axle Alignment Will Be Necessary.

After the subframe is removed, the engine and transmission are supported and the transmission mount bracket is disconnected. The last bolt between the engine and transmission is removed and the transmission is lowered.

Special tools and workshop equipment required

- Engine Support Bridge - 10-222A-
- Bracket with Spindle and Hook - 10-222A/10-
- Hose Clamps - Up to 40 mm - 3093- , if not available, use Hose Clamps - Up to 25 mm - 3094-
- Ball Joint Puller - 3287A-
- Insert Tool - 18 mm - T10179-
- Locating Pins - T10096-
- Assembly Tool - T10071-

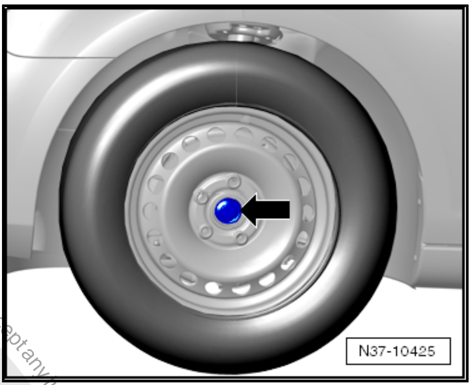
- Engine Support Bracket - T10338-
- Transmission Support - Mounting Plate 42A - 3282/42A-
- Engine Support Bridge - Engine Support 18 - 10-222A/18-
- Tensioning Strap - T10038-

Removing

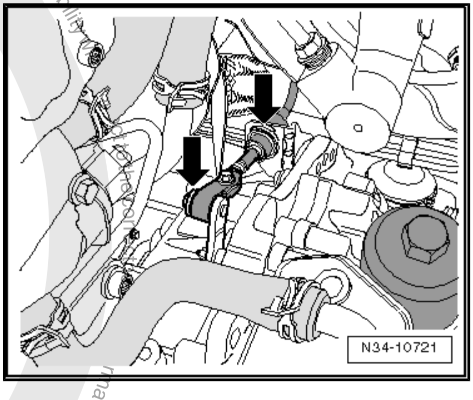
- Lift the vehicle, all 4 lift points of the hoist must be at the same height.
- Move the selector lever into the “P” position.
- Disconnect the battery. Refer to ⇒ Electrical Equipment; Rep. Gr. 27 ; Removal and Installation .

Note

Do not lower the vehicle onto the floor after loosening the drive axle bolt.



- Press the brake pedal in order to remove the left drive axle bolt -arrow- (second technician required).
- Remove the air filter housing and the bracket underneath it. Refer to ⇒ Engine Mechanical, Fuel Injection and Ignition; Rep. Gr. 24 ; Description and Operation .
- Remove the starter. Refer to ⇒ Electrical Equipment; Rep. Gr. 27 ; Removal and Installation .



- Remove the selector lever cable from the transmission.

Use pliers to remove the lock washer from the cable bracket. Do not use a sharp tool otherwise the rubber grommet on the cable may get damaged.

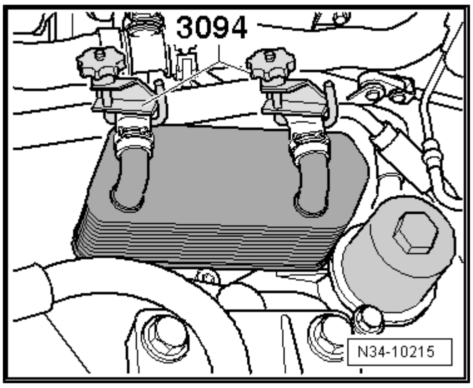
Both lock washers -arrows- must later be replaced when adjusting the cable.

Remove the cable from the transmission cable bracket. Do not bend the cable.

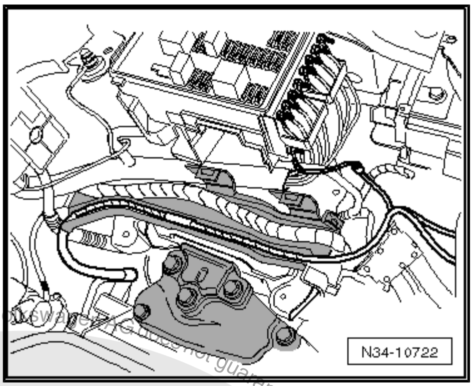
You can also slide the cable back slightly from the cable bracket and remove it later when lowering the transmission. Watch the cable when lowering the transmission.

Later, install the small lock washer only after having checked and adjusted the cable. Refer to ⇒ “4.1 Selector Lever Cable, Checking”, page 47 .

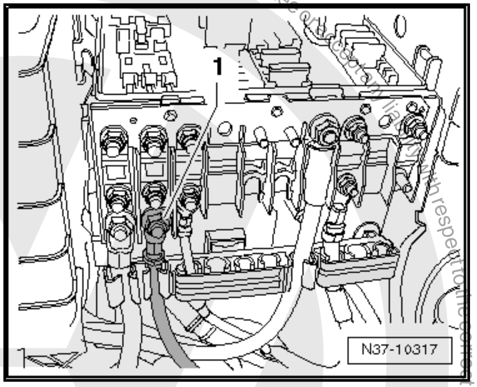
- Clamp off the coolant hoses to the oil cooler using either the Hose Clamps - Up to 40 mm - 3093- or the Hose Clamps - Up to 25 mm - 3094- and remove the hoses.
- Release the Mechatronic connector retainer by rotating and remove connector.
- Remove the wire bracket from the large transmission cover (2 M6 nuts).



- Disconnect the wiring harness from the subframe from underneath.



- Remove the nut -1- and the cable from the E-box.



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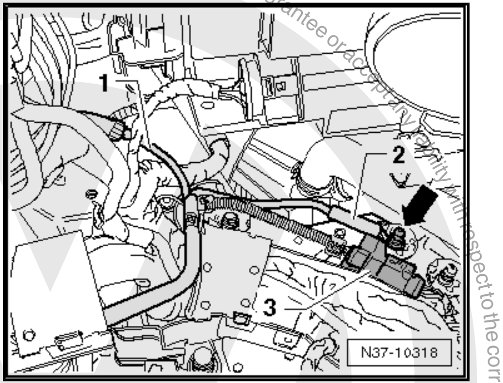


- Remove the nut -arrow- and the ground wire -2-.
- Disconnect the connector -3-.

This wiring harness will be removed later with the subframe. This way, you avoid time consuming work on the steering and heat shield.

- Disconnect the steering gear from the steering column. Refer to ⇒ Suspension, Wheels, Steering; Rep. Gr. 48 ; Removal and Installation .

Always move the steering wheel to the center position beforehand. Engage the steering wheel lock.

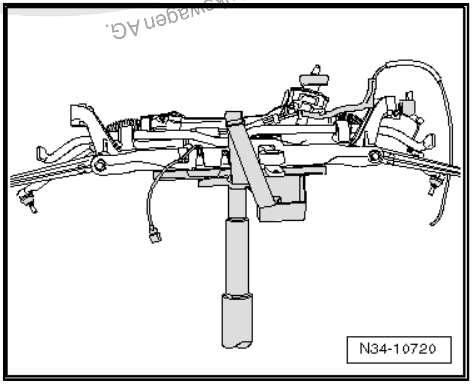
- Remove all the upper engine to transmission bolts. Insert Tool - 18 mm - T10179- is especially good for this.

It Is Advisable to Complete the Work under the Vehicle Now. This Prevents the Weight of the Engine from Resting on the Engine Support Bridge and Therefore on the Body for a Long Period of Time.

- Remove the noise insulation and lower section of the left front wheel housing liner if necessary. Refer to the following:

  For the noise insulation. Refer to ⇒ Body Exterior; Rep. Gr. 50 ; Description and Operation .

  For the wheel housing liner. Refer to ⇒ Body Exterior; Rep. Gr. 66 ; Removal and Installation .



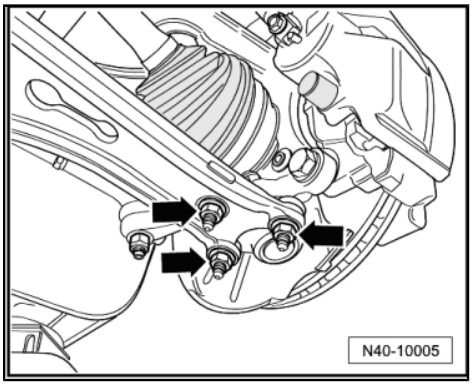
The subframe and the pendulum support will be removed together with both control arms and the steering gear.

When removing the subframe. Refer to ⇒ Suspension, Wheels, Steering; Rep. Gr. 40 ; Removal and Installation . If done correctly, the subframe can be removed and installed without the customer experiencing increased tire wear later. It is recommended to read this information prior to removing the transmission. This way, the subframe can be secured and removed correctly.

If the Subframe Is Not Secured, Then an Axle Alignment Will Be Necessary.

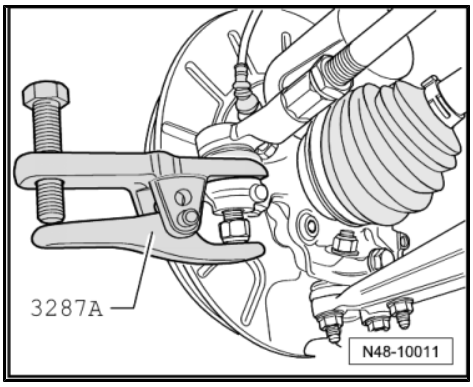
Secure the subframe. Refer to ⇒ Suspension, Wheels, Steering; Rep. Gr. 40 ; Description and Operation >

Remove the Subframe.



- Begin by removing the ball joint to control arm nuts -arrows- on both sides.
- Disconnect the connector from the left front level control system sensor.
- Remove both coupling rods from the stabilizer bar.

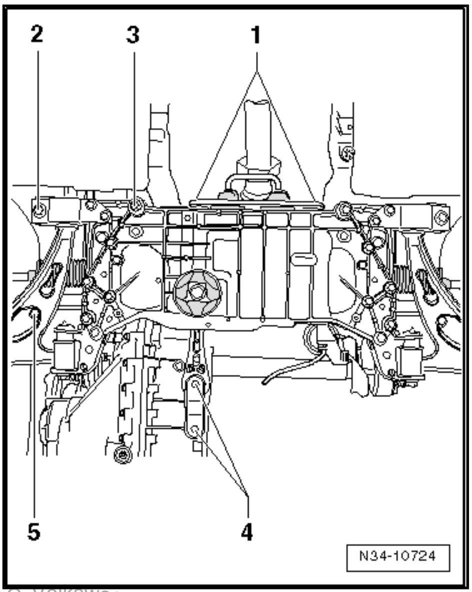
– Separate the tie rod ends from the wheel bearing housings.



– Remove the exhaust system suspended mount bolts -1- from the subframe.

– Remove the pendulum support to transmission bolts -4-.

Before removing the bolts -2 through 5- on both sides, install the Locating Pins - T10096- and support the subframe using the Engine/Gearbox Jack - VAG1383A- .

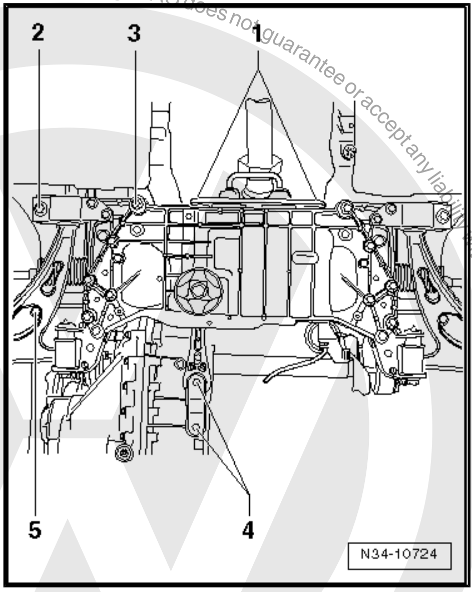


– Remove the bolts -2- on both the left and right sides only after you have supported the subframe.

Install a Locating Pins - T10096- in Place of the Bolt -2- on Both the Left and Right Sides as Soon as the Bolt is Removed.

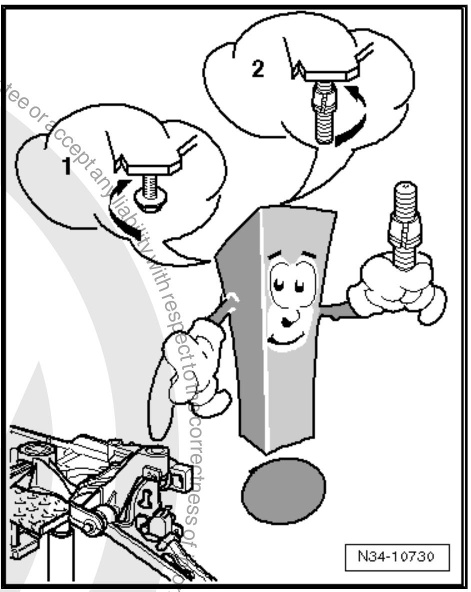
Do this with bolt -5- too.

If the Subframe Is Not Secured, Then an Axle Alignment Will Be Necessary.



It's important to remove the bolt -1- and install a locating pin -2- immediately.

- Carefully lower the subframe, be careful of the wiring harness to the engine compartment.

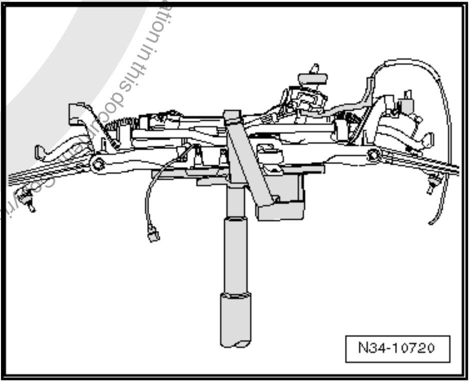


Set the subframe aside.

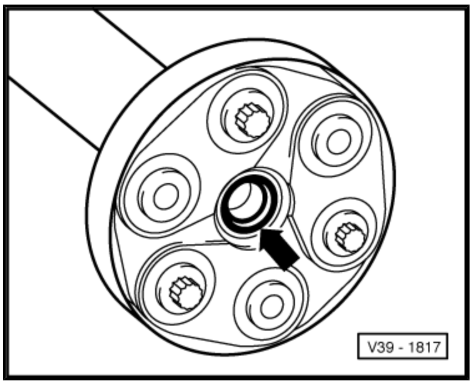
- Remove the right drive axle heat shield.
- Remove both drive axles from the transmission and carefully lay them aside.
- Remove the left drive axle from the vehicle.

Do not damage the surface of the drive axles. For this reason, tie straps made out of plastic or both Tensioning Strap - T10038- are very good to use .

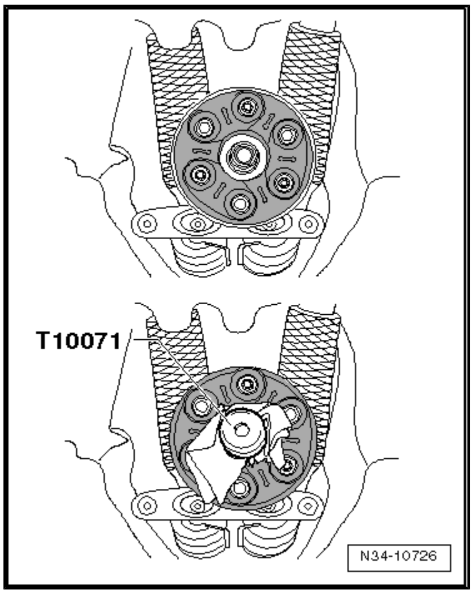
- Remove the driveshaft from the transmission.



The seal -arrow- in the driveshaft must not be damaged.



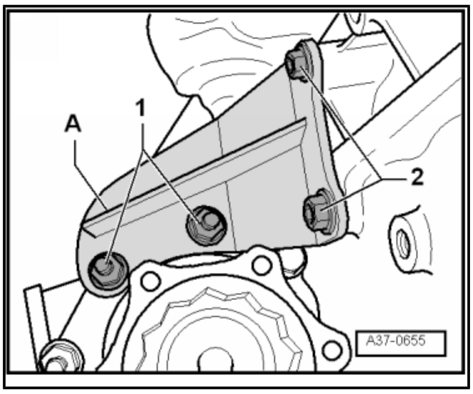
- Install the Seal Installer - Camshaft - T10071- with a cloth. This protects the seal.



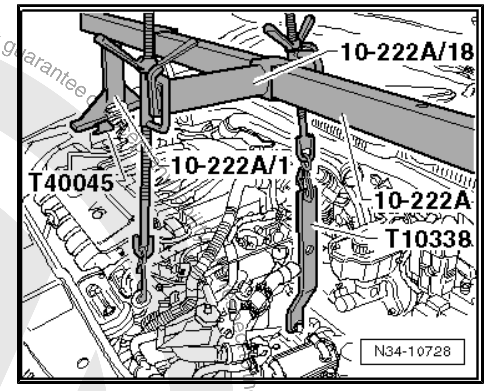
- Remove the bracket bolts -1 and 2- and the bracket -A- from between the cylinder block and the bevel box.
- If necessary, remove the secondary air injection pump motor bracket with the pump and lay it aside.
- Now, remove all the bolts except for one from the engine to transmission.

It Is Advisable to Leave a Bolt That Is Easily Accessible.

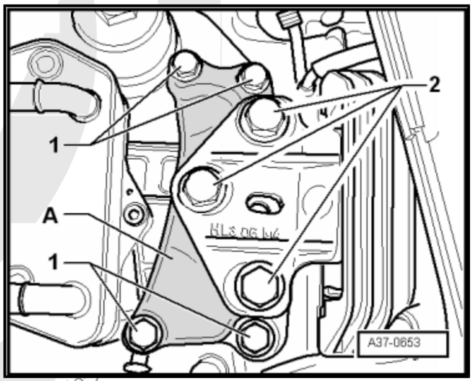
- Remove the filler pieces from both fender upper edges.
- Disconnect any hoses and wires in the area of the lifting eye on the engine.

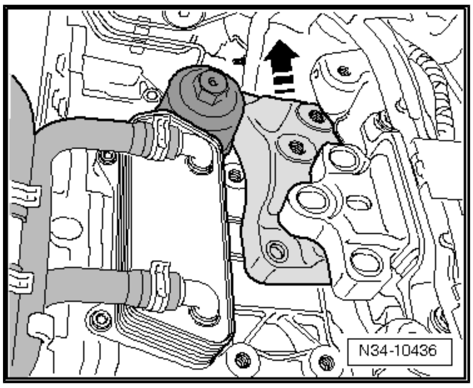


- Support the engine and the transmission using the Engine Support Bridge - 10-222A- and Engine Support - Bracket w/ Spindle and Hook - 10-222A/10- . Do not lift up yet.
- Move the long spindle forward onto the Engine Support Bridge - Engine Support 18 - 10-222A/18- .



- Remove the transmission mount to transmission mount bracket bolts -2- and the transmission mount bracket -A- to transmission bolts -1-.
- Then, lower the engine and transmission slightly using the Engine Support Bridge - 10-222A- spindle so the bracket -A- can be removed.





Remove the bracket -arrow-.

It really only needs to be lowered a little. As soon as the bracket can be removed, this is enough to guide the transmission onto the longitudinal member later. Add a maximum of 4 turns to each spindle.

– Align the Transmission Support - 3282- with the Transmission Support - Mounting Plate 42A - 3282/42A- .

– Guide the Engine/Gearbox Jack - VAG1383A- under the transmission and support it. Do not lift up yet.

The transmission is disconnected from the engine in this position.

– Remove all remaining engine to transmission bolts.

– Separate the transmission from the engine while being careful of the selector lever cable and lower it.

Transport the transmission and secure it to the assembly stand. Refer to ⇒ “5.22 Transmission, Transporting and Securing to the Assembly Stand”, page 130 .

Install the transmission. Refer to ⇒ “5.23 Transmission, Installing”, page 131 .

5.17 Bevel Box

Special tools and workshop equipment required

- Used Oil Collection And Extraction Unit - SMN372500-
- Socket and Extended Bit - T10107A-
- Hooks - 3004-

Removing

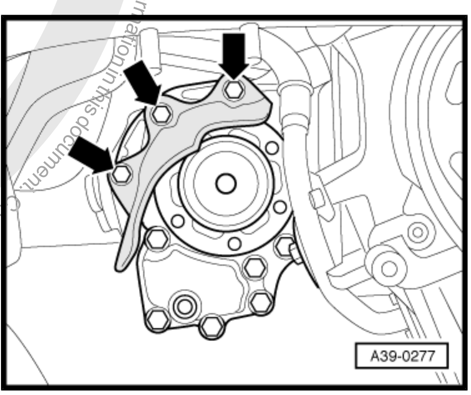
– Move the selector lever into the “P” position.

– Lift the vehicle, all 4 lift points of the hoist must be at the same height.

– Remove the right front wheel.

– Remove the noise insulation. Refer to ⇒ Body Exterior; Rep. Gr. 50 ; Description and Operation .

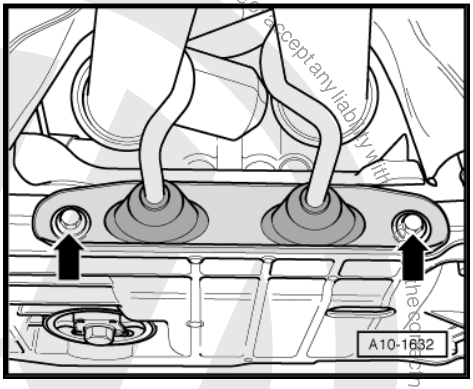
– Remove the right drive heat shield bolts -arrows- and shield from the bevel box.



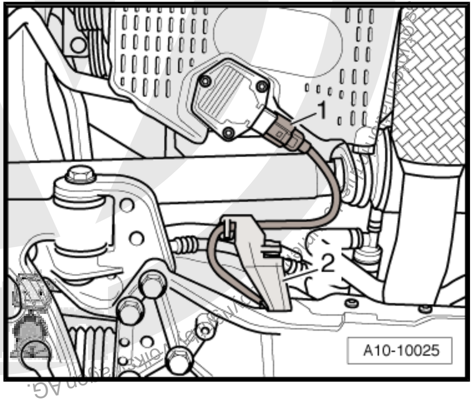
– Disconnect the right drive axle from the transmission flange.

– Lift up the right drive axle and secure with wire.

– Remove the exhaust system suspended mount bracket bolts -arrows- from the subframe.

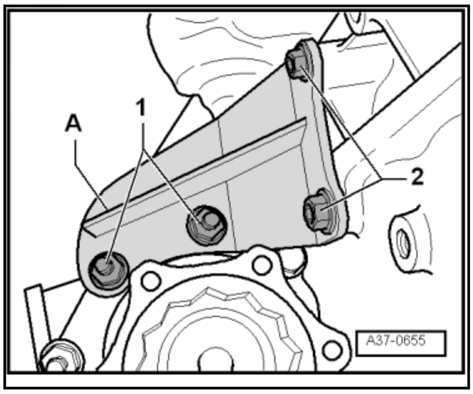


– Remove the bracket -2- for the oil level thermal sensor wire from the subframe.

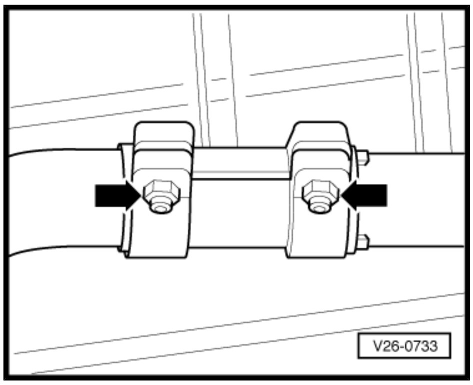


– Remove the bracket bolts -1 and 2-.

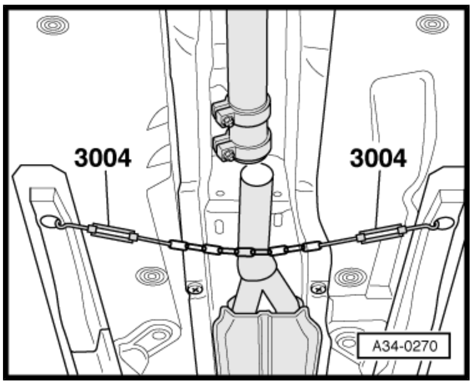
– Remove the bracket -A- from between the bevel box and transmission.



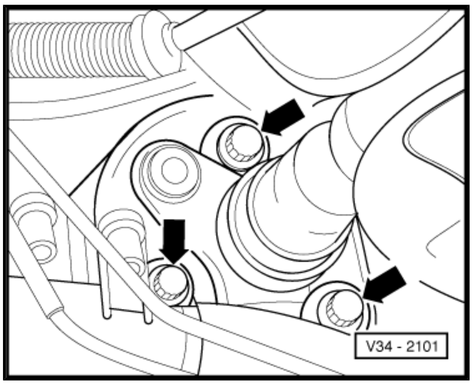
– Disconnect the exhaust system.



- Tie up the exhaust system with a chain. To do this, insert the Adjustable Hooks - 3004- into the openings at the vehicle floor (remove the plugs, if necessary).
- Identify the position of the driveshaft flexible disc and bevel box flange to each other.

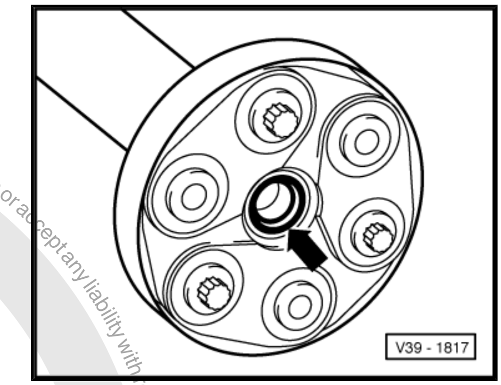


- Remove the driveshaft flexible disc to bevel box flange bolts -arrows-.

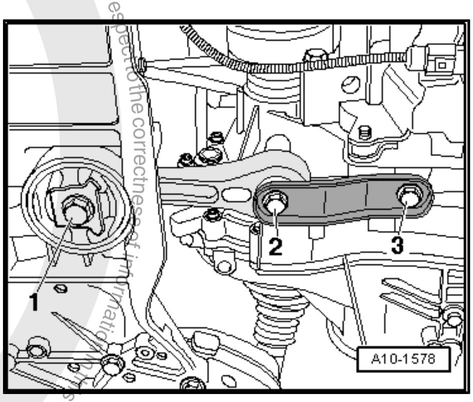


- Push the final drive horizontally as far as possible to the rear.

> **Caution**
>
> - *The seal -arrow- in the driveshaft flange must not be damaged when removing the transmission. If the seal is damaged, the driveshaft must be replaced.*
> - *When loosening the pendulum support/subframe bolts, the engine/transmission assembly moves forward slightly.*

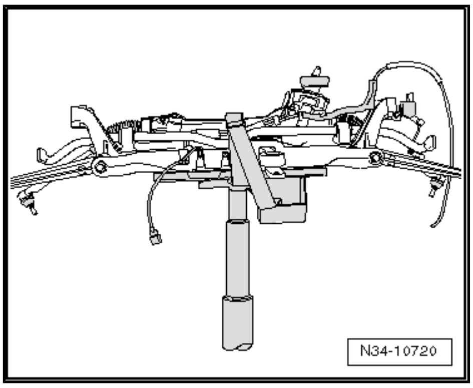


- Remove the bolts -2 and 3-.
- Press the engine and transmission assembly forward slightly and remove the driveshaft from the bevel box.
- Place the driveshaft above the bevel box and secure it from falling.

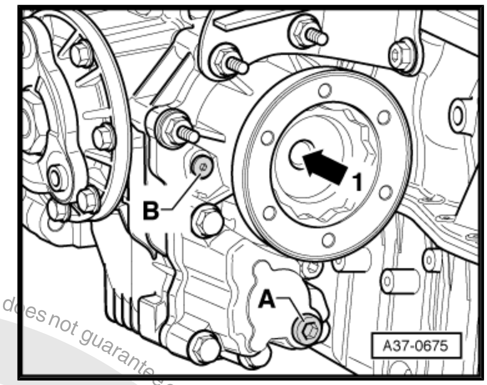


- Remove the subframe.

When removing the subframe. Refer to ⇒ Suspension, Wheels, Steering; Rep. Gr. 40 ; Removal and Installation . If done correctly, the subframe can be removed and installed without the customer experiencing increased tire wear later. It is recommended to read this information prior to removing the transmission. This way, the subframe can be secured and removed correctly.



- Place the Used Oil Collection And Extraction Unit - SMN372500- under the transmission.
- Remove the right flange shaft bolt -arrow 1- using the Socket and Extended Bit - T10107A- . Tightening specification. Refer to ⇒ "2.3 Overview - Flange Shaft and Bevel Box Seals", page 163 .
- Remove the four bevel box bolts from the transmission.



- Remove the bevel box from the transmission together with the flange shaft.

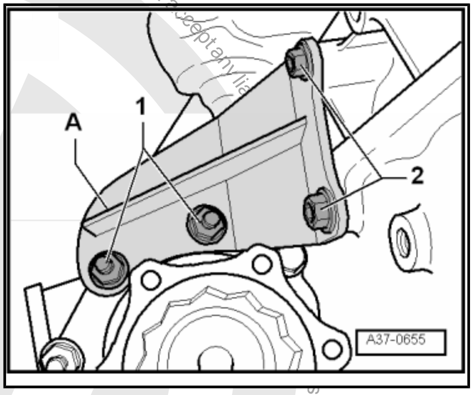
Installing

Install in reverse order of removal. Pay attention to the following:

- Place the bevel box on the transmission together with the flange shaft while turning the shaft.
- Secure the bevel box to the transmission with four new bolts.

Tightening Specification:

40 Nm



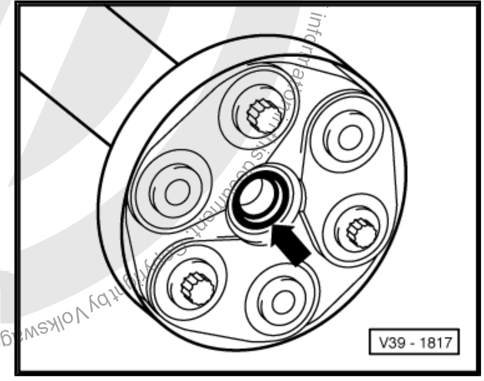
- Install the bracket bolts -1 and 2- hand tight.
- Follow the installation sequence:

1 - First, tighten the bolts -1- to 3 Nm.

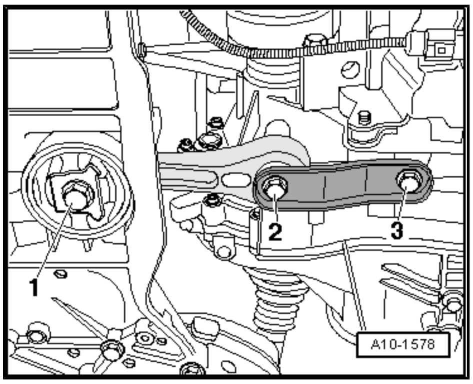
2 - Tighten the bolts -2- to 35 Nm.

3 - Then, tighten the bolts -1- to 45 Nm.

- Install the subframe. Refer to ⇒ Suspension, Wheels, Steering; Rep. Gr. 40 ; Removal and Installation .
- Press the engine and transmission toward the bulkhead; while doing so, carefully guide the pin of bevel box into the driveshaft flange.



- Be careful of the seal.



- Secure the pendulum support to the transmission with new bolts - 2 and 3-.
- Install the exhaust system without tension. Refer to ⇒ Engine Mechanical, Fuel Injection and Ignition; Rep. Gr. 26 ; Removal and Installation .
- Install the right drive axle. Refer to ⇒ Suspension, Wheels, Steering; Rep. Gr. 40 ; Removal and Installation .
- Check oil level in the bevel box and fill if necessary. Refer to ⇒ “1.1 Bevel Box Gear Oil Level, Checking and Filling”, page 158 .

Tightening Specifications

Component	Nm
Drive axle heat shield to bevel box	25

5.18 Transmission, Removing

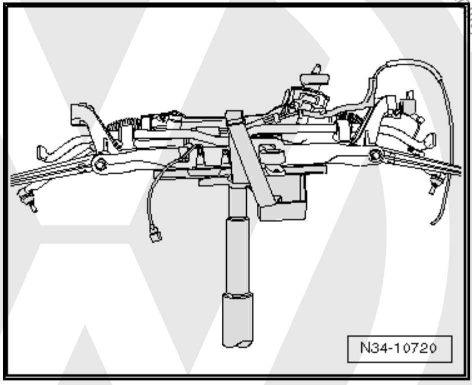
Short Description

The transmission is remove downward by itself. The engine remains in the vehicle.

From Above:

The battery, air filter housing and starter are removed. The coolant hoses are clamped off. Before removing the subframe, the engine and transmission must be supported.

From Underneath:



The subframe, along with the pendulum support, steering gear and both control arms are removed together.

When removing the subframe. Refer to ⇒ Suspension, Wheels, Steering; Rep. Gr. 40 ; Removal and Installation . If done correctly, the subframe can be removed and installed without the customer experiencing increased tire wear later. It is recommended to read this information prior to removing the transmission. This way, the subframe can be secured and removed correctly.

The Locating Pins - T10096- will be needed.

If the subframe is not secured using the pins, then later an axle alignment will be necessary.

In This Case, an Axle Alignment Is Unnecessary. It Would Be a Lot of Work and an Unnecessary Charge!

Installing the Locating Pins - T10096- is simple and it is very useful.

Special tools and workshop equipment required

- Engine Support Bridge - 10-222A-
- Transmission Support - Mounting Plate 42A - 3282/42A-
- Engine Support Bridge - Engine Support 18 - 10-222A/18-
- Engine Support Bridge - Engine Support 3 - 10-222A/3-
- Transmission Support - 3282-
- Insert Tool - 18 mm - T10179-
- Engine Support Bridge - Gearbox Bracket - T10346-
- Multipoint Socket - T10035-
- Engine Support Feet - 10-222A/8-

- Hose Clamps - Up to 40 mm - 3093- , if not available, use Hose Clamps - Up to 25 mm - 3094-
- Engine/Gearbox Jack - VAG1383A-
- Tensioning Strap - T10038-

Removing

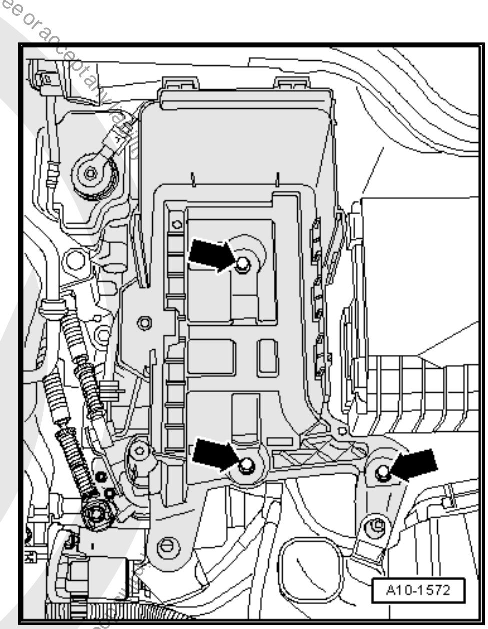
– Lift the vehicle, all four lift points of the hoist must be at the same height.

– Move the selector lever into the “P” position.

– Remove both front wheels.

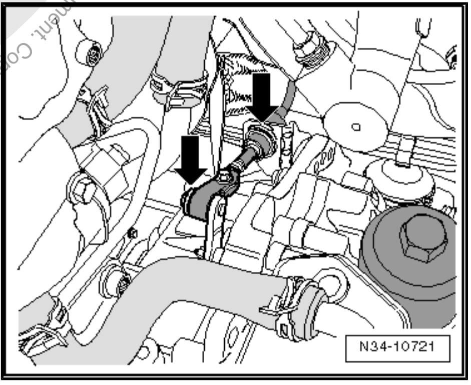
– Remove the air filter housing. Refer to ⇒ Engine Mechanical, Fuel Injection and Ignition; Rep. Gr. 24 ; Removal and Installation .

– Remove the battery, the battery tray bolts -arrows- and tray.



– Remove the starter. Refer to ⇒ Electrical Equipment; Rep. Gr. 27 ; Removal and Installation .

– Remove the selector lever cable from the transmission.



Use pliers to remove the lock washer for the cable bracket. Do not use a sharp tool otherwise the rubber grommet on the cable may get damaged.

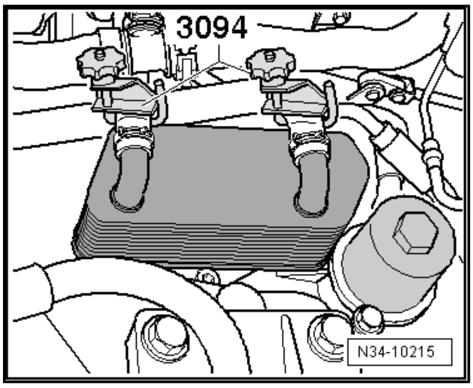
Both lock washers -arrows- must later be replaced when adjusting the cable.

Remove the cable from the transmission cable bracket. Do not bend the cable.

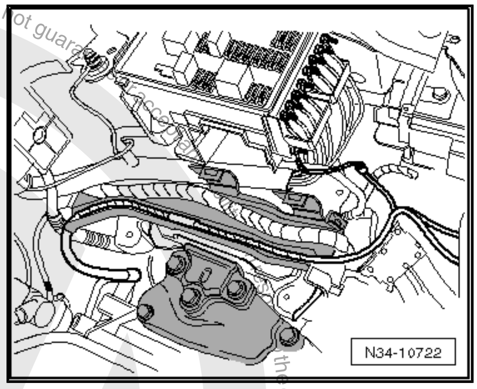
You can also slide the cable back slightly from the cable bracket and remove it later when lowering the transmission. Watch the cable when lowering transmission.

Later, install the small lock washer only after having checked and adjusted the cable. Refer to ⇒ “4.1 Selector Lever Cable, Checking”, page 47 .

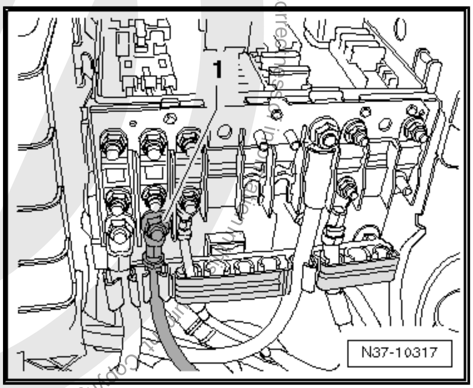
- Clamp off the coolant hoses to the oil cooler using either the Hose Clamps - Up to 40 mm - 3093- or the Hose Clamps - Up to 25 mm - 3094- and remove the hoses.
- Release the Mechatronic connector retainer by rotating and remove connector.
- Remove the cable bracket from the large transmission cover (two M6 nuts).

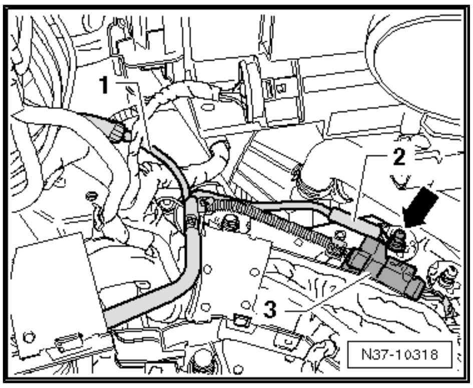


- Disconnect the wiring harness from the subframe from underneath.



- Remove the nut -1- and the cable from the E-box.





– Remove the nut -arrow- and the ground wire -2-.

– Disconnect the connector -3-.

This wiring harness will be removed later with the subframe. This saves time consuming work on the steering and the heat shield.

– Remove all the upper engine to transmission bolts. The Insert Tool - 18 mm - T10179- is especially good for this.

– Remove the filler pieces from both fender upper edges.

– If any hose or wire connections are located near the engine lifting eyes: disconnect these now.

– Disconnect the steering gear from the steering column. Refer to ⇒ Suspension, Wheels, Steering; Rep. Gr. 48 ; Removal and Installation .

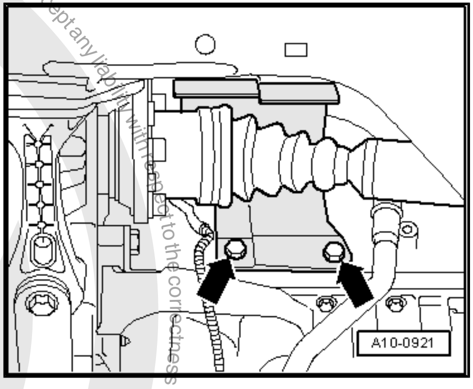
Always move the steering wheel to the center position. Engage the steering wheel lock.

It Is Advisable to Complete the Work under the Vehicle Now. This Prevents the Weight of the Engine from Resting on the Engine Support Bridge and Therefore on the Body for a Long Period of Time.

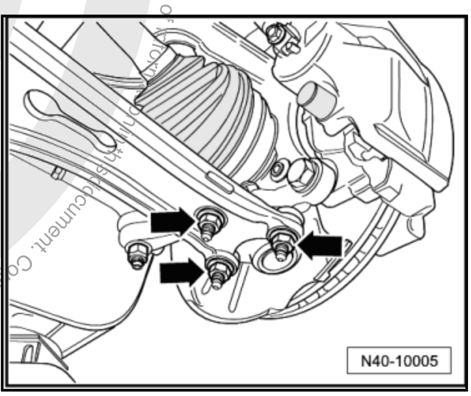
– Remove the noise insulation and lower section of the left front wheel housing liner if necessary. Refer to the following:

For the noise insulation. Refer to ⇒ Body Exterior; Rep. Gr. 50 ; Description and Operation .

For the wheel housing liner. Refer to ⇒ Body Exterior; Rep. Gr. 66 ; Removal and Installation .



– Remove the right drive axle heat shield bolts -arrows- and shield, if equipped.



– Remove the ball joint to control arm nuts -arrows- on both sides.

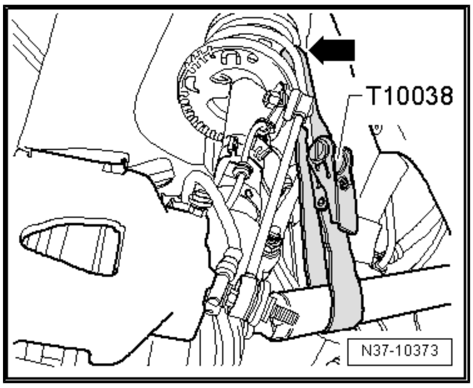
– Remove the coupling rods from the stabilizer bar.

– Remove both drive axles from the transmission and carefully lay aside.

Do not damage the surface of the drive axles. For this reason, tie straps made out of plastic or both Tensioning Strap - T10038- are very good to use.

Both drive axles are attached to the struts using the Tensioning Strap - T10038- .

– Remove the pendulum support bolts from the transmission.



The subframe and the pendulum support will be removed together with both control arms and the steering gear.

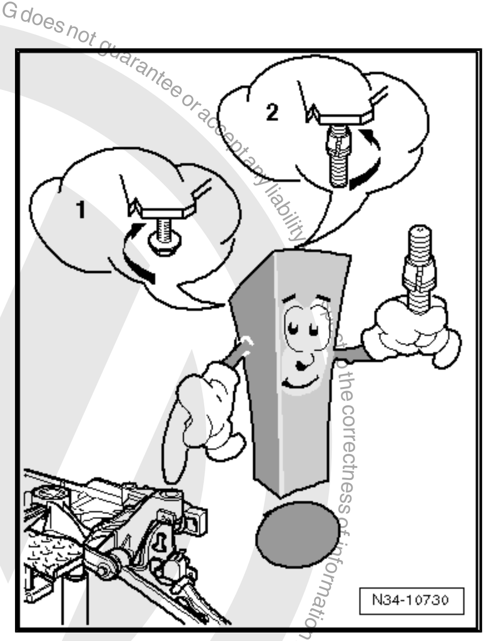
When removing the subframe. Refer to ⇒ Suspension, Wheels, Steering; Rep. Gr. 40 ; Removal and Installation . If done correctly, the subframe can be removed and installed without the customer experiencing increased tire wear later. It is recommended to read this information prior to removing the transmission. This way, the subframe can be secured and removed correctly.

If the Subframe Is Not Secured, Then an Axle Alignment Will Be Necessary.

Secure the subframe. Refer to ⇒ Suspension, Wheels, Steering; Rep. Gr. 40 ; Description and Operation .

Remove the Subframe.

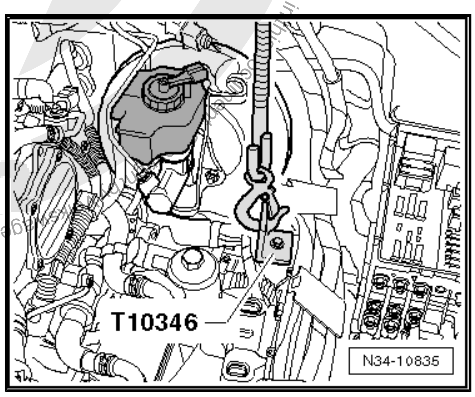
– Install one Locating Pins - T10096- -2- as soon as one bolt -1- is removed.



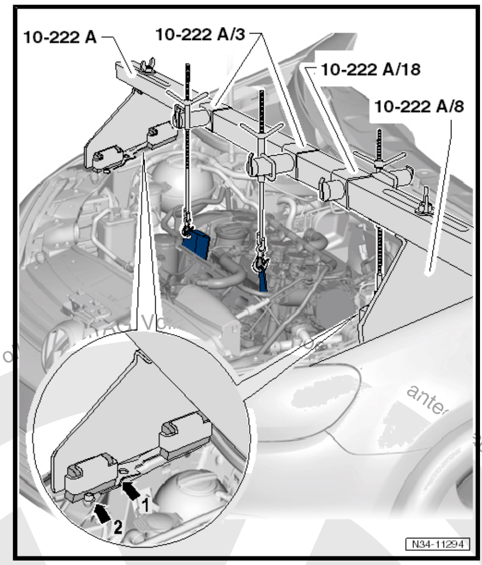
– Install the Engine Support Bridge - Gearbox Bracket - T10346- to the longitudinal member.

(to the rear hole of the three battery tray bolt holes)

– Remove the filler pieces from both fender upper edges.

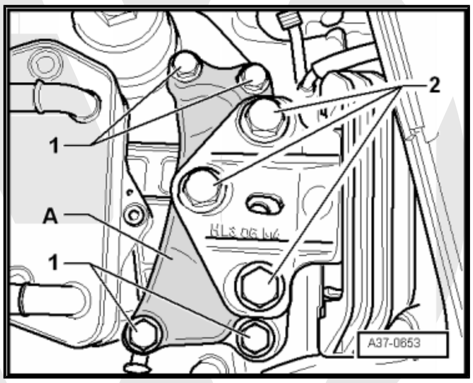


– Support the engine and transmission. Do not lift up yet.



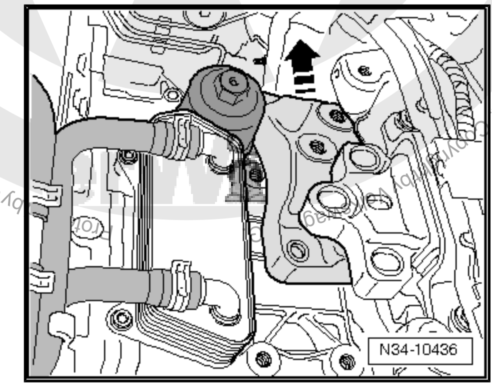
– Remove the transmission mount to transmission mount bracket bolts -1- and the transmission mount bracket -A- to transmission bolts -1-.

– Then, lower the engine and transmission slightly using the spindles until the bracket can be removed.



Approximately 3 turns is sufficient to remove the bracket in direction of -arrow-.

The transmission is disconnected from the engine in this position.



– Align the Transmission Support - 3282- with the Transmission Support - Mounting Plate 42A - 3282/42A- .

– Guide the Engine/Gearbox Jack - VAG1383A- under the transmission and support it. Do not lift up yet.

– Remove all the remaining engine to transmission bolts.

– Separate the transmission from the engine while being careful of selector lever cable and lower the transmission.

Transport the transmission and secure it to the assembly stand. Refer to
⇒ “5.22 Transmission, Transporting and Securing to the Assembly Stand”, page 130 .

Install the transmission. Refer to
⇒ “5.23 Transmission, Installing”, page 131 .

5.19 Transmission, Removing

Short Description

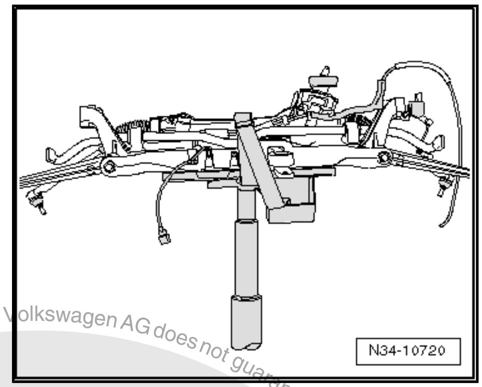
The transmission is remove downward by itself.

From above:

The battery, air filter housing and starter are removed. The steering gear wiring harness is disconnected and freed up. This way it can be lowered together with the subframe and the steering gear.

The engine and transmission are supported before the transmission mount is removed.

From underneath:



The subframe, with the pendulum support, the steering gear and both control arms are removed together.

Both drive axles are disconnected from the transmission and remain inside the wheel bearing housings. Occasionally they will be moved to the side, but they still remain on the vehicle.

When removing the subframe. Refer to ⇒ Suspension, Wheels, Steering; Rep. Gr. 40 ; Removal and Installation . If done correctly, the subframe can be removed and installed without the customer experiencing increased tire wear later. It is recommended to read this information prior to removing the transmission. This way, the subframe can be secured and removed correctly.

The Locating Pins - T10096- will be needed.

If the subframe is not secured using the pins, then a axle alignment will be necessary later.

In This Case, an Axle Alignment Is Unnecessary. It Would Be a Lot of Work and an Unnecessary Charge!

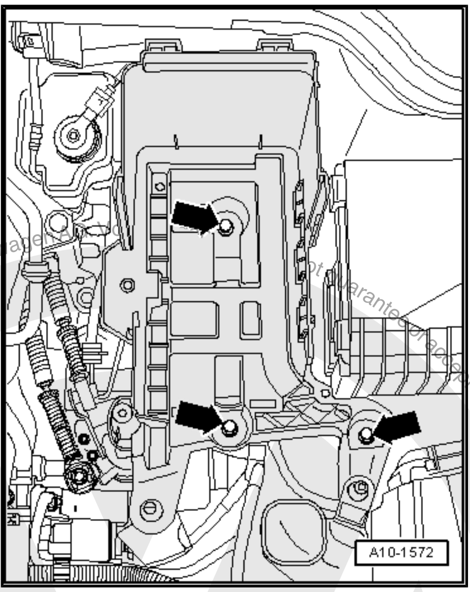
Special tools and workshop equipment required

- Engine Support Bridge - 10-222A-
- Transmission Support - Mounting Plate 42A - 3282/42A-
- Hose Clamps - Up to 40 mm - 3093- , if not available, use Hose Clamps - Up to 25 mm - 3094-
- Engine Support Bridge - Engine Support 18 - 10-222A/18-
- Transmission Support - 3282-
- Insert Tool - 18 mm - T10179-
- Transmission Support - Pins 29 - 3282/29-
- Multipoint Socket - T10035-
- Adjustment Plate - 3282/59-
- Engine/Gearbox Jack - VAG1383A-

Removing

- Lift the vehicle, all four lift points of the hoist must be at the same height.
- Move the selector lever into the “P” position.
- Remove the air filter housing. Refer to ⇒ Engine Mechanical, Fuel Injection and Glow Plug; Rep. Gr. 23 ; Removal and Installation .

- Remove the battery, the battery tray bolts -arrows- and tray.
- Remove the starter. Refer to ⇒ Electrical Equipment; Rep. Gr. 27 ; Removal and Installation .



- Remove the selector lever cable from the transmission.

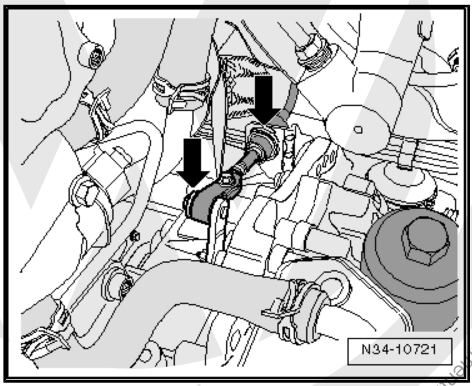
Use pliers to remove the lock washer for the cable bracket. Do not use a sharp tool otherwise the rubber grommet on the cable may get damaged.

Both lock washers -arrow- must later be replaced when adjusting the cable.

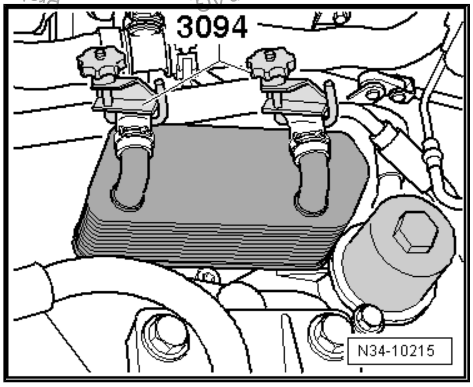
Remove the cable from the transmission cable bracket. Do not bend the cable.

You can also slide the cable back slightly from the cable bracket and remove it later when lowering the transmission. Watch the cable when lowering transmission.

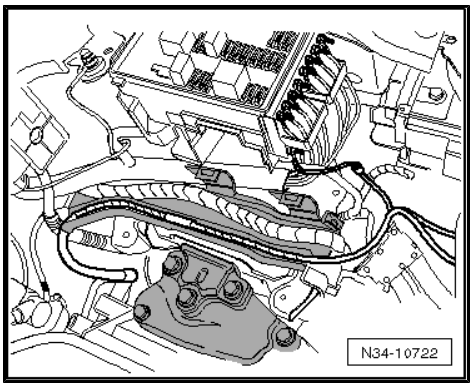
Later, install the small lock washer only after having checked and adjusted the cable. Refer to ⇒ “4.1 Selector Lever Cable, Checking”, page 47 .



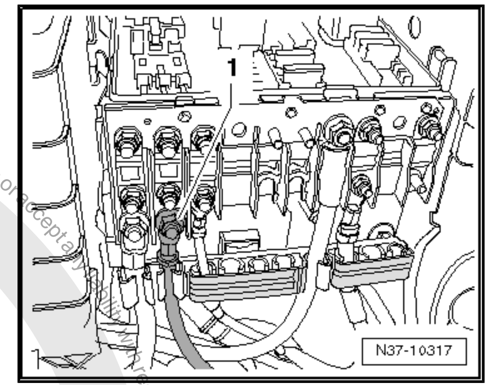
- Clamp off the coolant hoses to the oil cooler using either the Hose Clamps - Up to 40 mm - 3093- or the Hose Clamps - Up to 25 mm - 3094- and remove the hoses.
- Remove the wire bracket from the large transmission cover (two M6 nuts).
- Release the Mechatronic connector retainer by rotating and remove connector.



- Disconnect the wiring harness from the subframe from underneath.



- Remove the nut -1- and the cable from the E-box.

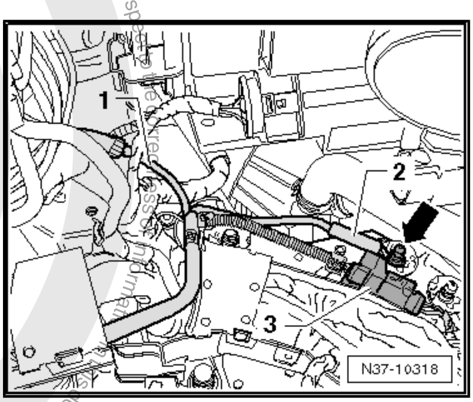


- Remove the nut -arrow- and the ground wire -2-.
- Disconnect the connector -3-.

This wiring harness will be removed later with the subframe. This way, you avoid time consuming work on the steering and heat shield.

- Remove all upper engine/transmission bolts.

These tools are suitable for this.



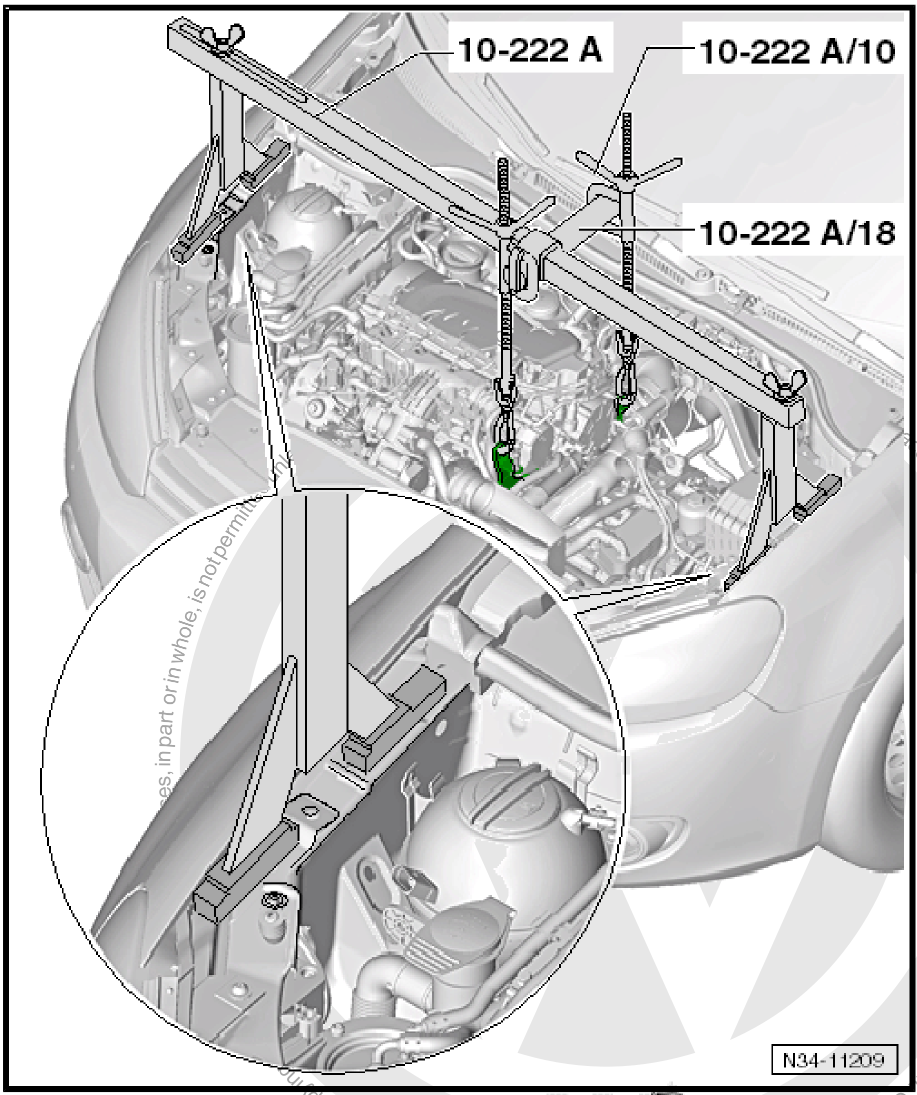
Special tools and workshop equipment required

- ♦ Multipoint Socket - T10035-
- ♦ Socket, Multi Point Bit XZN 14 - T10061-
- ♦ Bits for VAG1331/13 - T10099-
- ♦ Insert Tool - 18 mm - T10179-

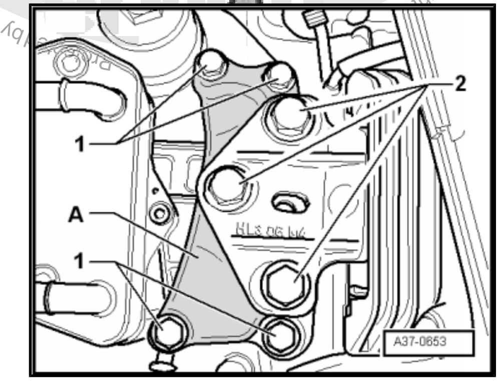
- Disconnect the steering gear from the steering column. Refer to ⇒ Suspension, Wheels, Steering; Rep. Gr. 48 ; Removal and Installation .

Always move the steering wheel to the center position. Engage the steering wheel lock.

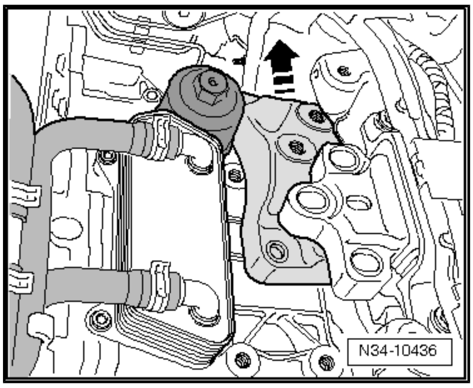
- Support the engine and transmission. Do not lift up yet.


10-222 A
10-222 A/10
10-222 A/18
N34-11209

- Remove the transmission mount to transmission mount bracket bolts -2- and the transmission mount bracket -A- to transmission bolts -A-.
- Then, lower the engine/transmission slightly using the spindles so the bracket can be removed.


2
1
A
1
A37-0653

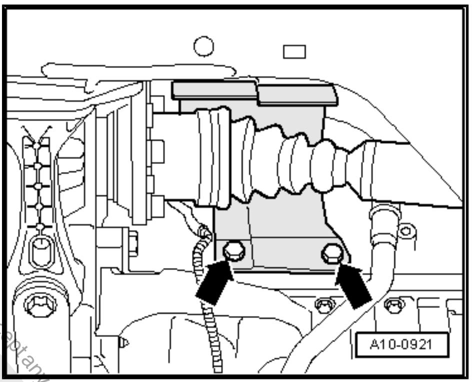
A maximum of four rotations is sufficient to remove the bracket in direction of -arrow-.



– Remove the noise insulation and lower section of the left front wheel housing liner if necessary. Refer to the following:

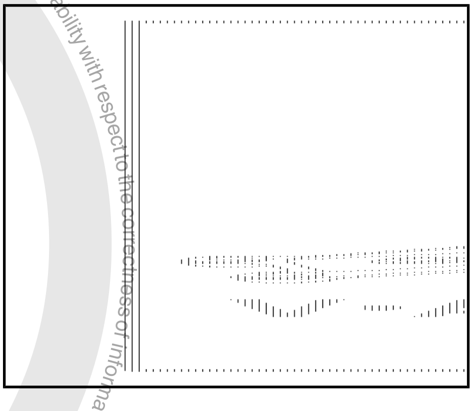
  For the noise insulation. Refer to ⇒ Body Exterior; Rep. Gr. 50 ; Description and Operation .

  For the wheel housing liner. Refer to ⇒ Body Exterior; Rep. Gr. 66 ; Removal and Installation .



– Remove the right drive axle heat shield bolts -arrows- and shield, if equipped.

– Remove the drive axle from the transmission and carefully move it to the side.



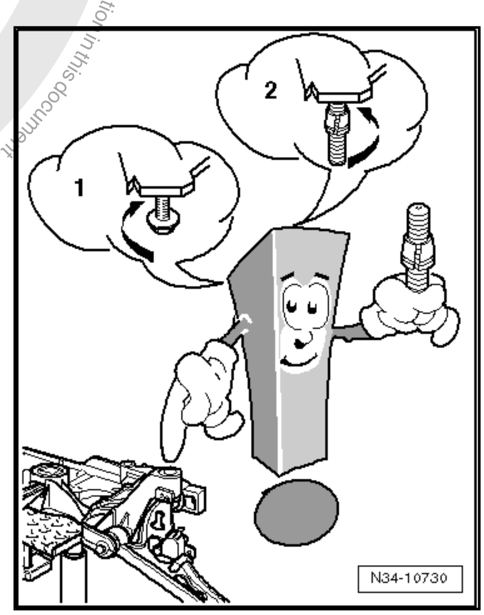
The subframe and the pendulum support will be removed together with both control arms and the steering gear.

For more information regarding the subframe. Refer to ⇒ Suspension, Wheels, Steering; Rep. Gr. 40 ; Removal and Installation . It is recommended that you read this information prior to removing the transmission. This shows how the subframe must be secured correctly, as illustrated and how to remove it.

If the Subframe Is Not Secured Using the Pins, Then a Axle Alignment Will Be Necessary Later.

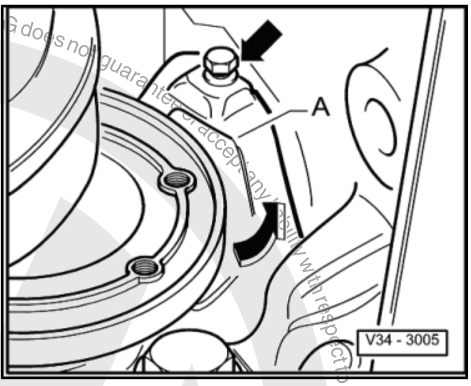
Secure the subframe. Refer to ⇒ Suspension, Wheels, Steering; Rep. Gr. 40 ; Description and Operation .

Remove the Subframe.



– Install one Locating Pins - T10096- -2- as soon as one bolt -1- is removed.

After the subframe is removed, the engine is supported with the transmission.



- A small, additional cover plate (above right drive flange) is located on the engine/transmission intermediate plate. Remove the cover plate -A-.
- Align the Transmission Support - 3282- with the Transmission Support - Mounting Plate 42A - 3282/42A- .
- Guide the Engine/Gearbox Jack - VAG1383A- under the transmission and support it. Do not lift up yet.

The transmission is disconnected from the engine in this position.

- Remove all remaining engine to transmission bolts.
- Separate the transmission from the engine while being careful of the selector lever cable and lower the transmission.

Transport the transmission and secure it to the assembly stand. Refer to
⇒ “5.22 Transmission, Transporting and Securing to the Assembly Stand”, page 130 .

Install the transmission. Refer to
⇒ “5.23 Transmission, Installing”, page 131 .

5.20 Transmission, Removing

Special tools and workshop equipment required

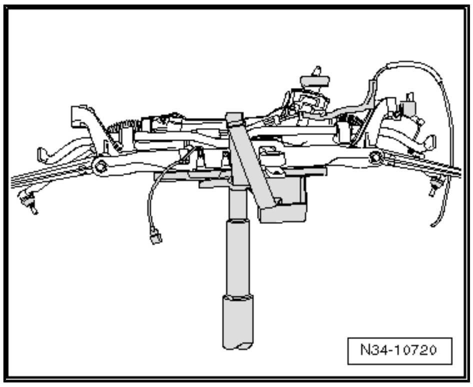
- ◆ Engine Support Bridge - 10-222A-
- ◆ Transmission Support - Mounting Plate 42A - 3282/42A-
- ◆ Socket Wrench - T10061-
- ◆ If Hose Clamps - Up to 25 mm - 3094- are available, use Hose Clamps - Up to 40 mm - 3093-
- ◆ Transmission Support - 3282-
- ◆ Insert Tool - 18 mm - T10179-
- ◆ Engine/Gearbox Jack - VAG1383A-

Short Description

The transmission is remove downward by itself, from above:

The battery, air filter and starter are removed. Coolant hoses are clamped off. Before removing the subframe, the engine and transmission must be supported.

From underneath:



The subframe, with the pendulum support, with the steering gear and with both control arms are removed together.

Removing

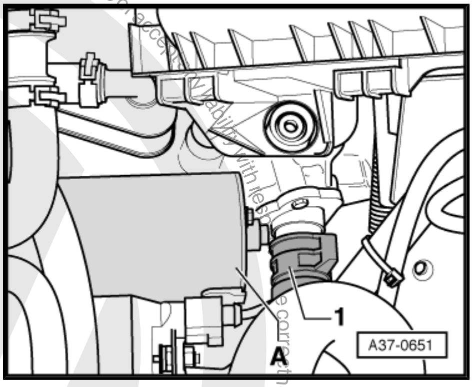
- Lift the vehicle, all 4 take-up points of lifting platform at same height.
- Move the selector lever into P.
- Remove the air filter housing. Refer to ⇒ Engine Mechanical; Fuel Injection and Ignition; Rep. Gr. 24 ; Removal and Installation
- Remove the battery and the battery tray. Refer to ⇒ Electrical Equipment; Rep. Gr. 27 ; Removal and Installation .

– Turn and unlock the connector and then disconnect it from the Mechatronic -1-.

– Remove the starter. Refer to -A-. Refer to ⇒ Electrical Equipment; Rep. Gr. 27 ; Removal and Installation .

Remove the lower bolt first.

– Disconnect the ground strap from the bracket.



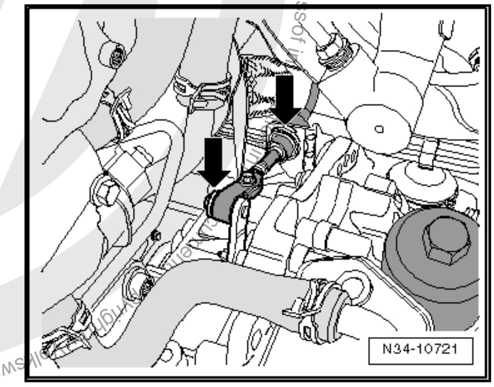
– Remove the selector lever cable from the transmission.

Use pliers to remove the lock washer. Do not use a sharp-end lever otherwise the rubber grommet on the cable may get damaged.

Always replace both lock washers.

⚠ **Caution**

Do not bend the transmission cable. Pay attention to cable while the transmission is being lowered.

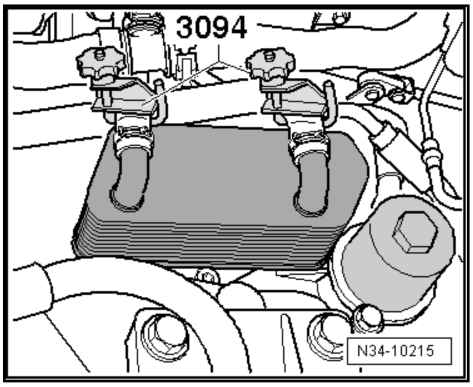


– Remove the cable from the transmission cable mounting bracket. Do not bend the cable.

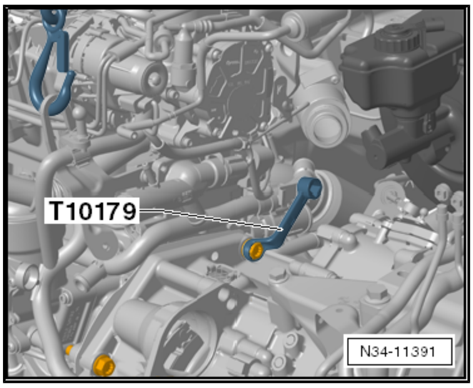
The cable can be removed later when the transmission is lowered. Pay attention to cable while the transmission is being lowered.

During installation, only engage small lock washer after checking and adjusting cable.

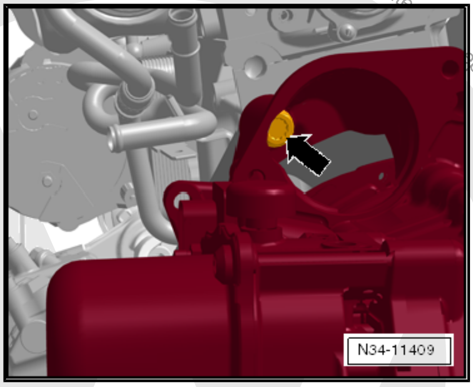
– Clamp off the coolant hoses with hose clamps Hose Clamps - Up to 25 mm - 3094- and remove them.



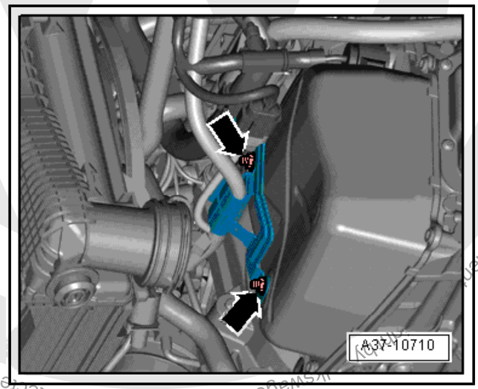
– Remove the upper engine/transmission connecting bolts.



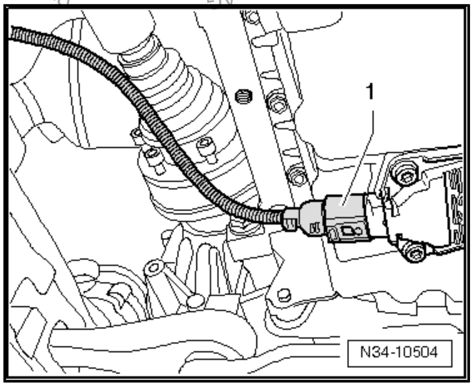
One bolt is located inside the hole for the starter -arrow-.



- Remove the noise insulation. Refer to ⇒ Body Exterior; Rep. Gr. 50 ; Description and Operation .
- Remove the lower section of the left front wheel housing liner. Refer to ⇒ Body Exterior; Rep. Gr. 66 ; Removal and Installation .
- Remove the cable bracket from »black« front transmission cover (quantity: 2 M6 nuts).



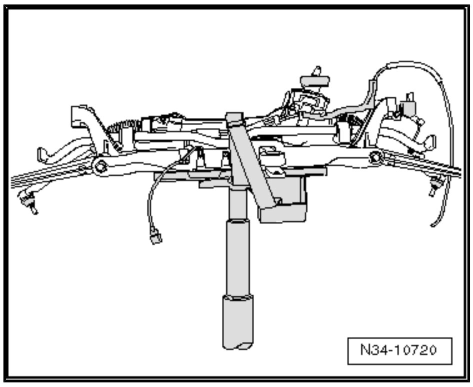
- Disconnect the connector -1- from the Oil Level Thermal Sensor - G266- .



The -subframe- and the -pendulum support- will be removed together with -both control arms- and -steering-.

Refer to Subframe with Steering Gear in ⇒ Suspension, Wheels, Steering; Rep. Gr. 40 ; Removal and Installation .

- Remove both driveshafts from the transmission. Refer to ⇒ Suspension, Wheels, Steering; Rep. Gr. 40 ; Removal and Installation .

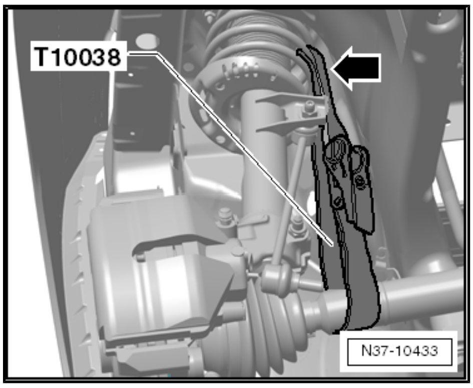


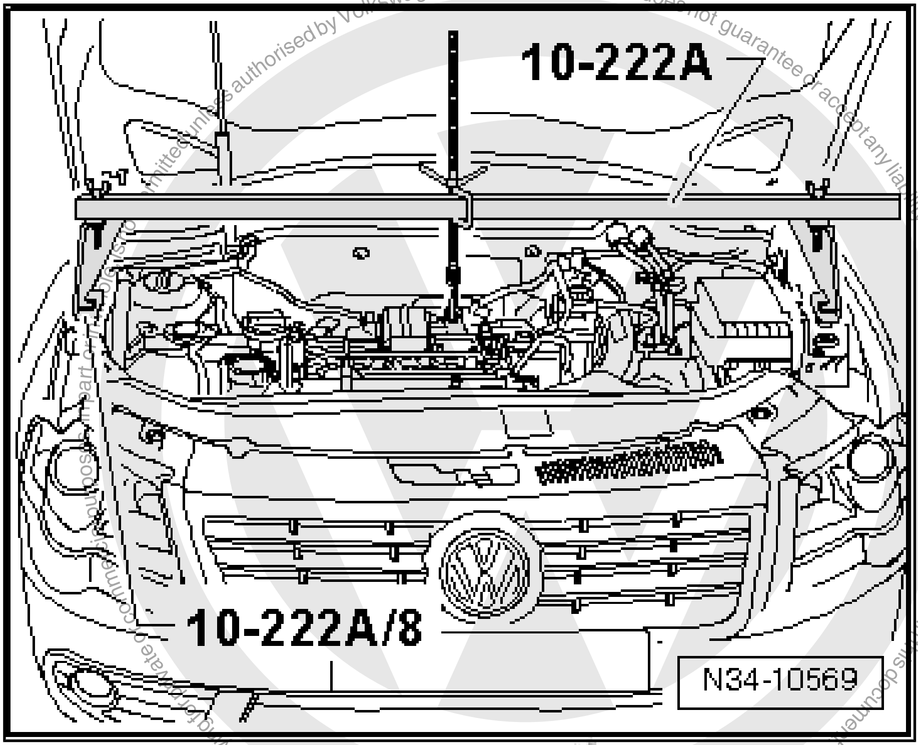
– Secure the driveshafts to the suspension strut using a Tensioning Strap - T10038- .

Do not damage the surface of the shafts.

– Remove filler pieces from both fender upper edges.

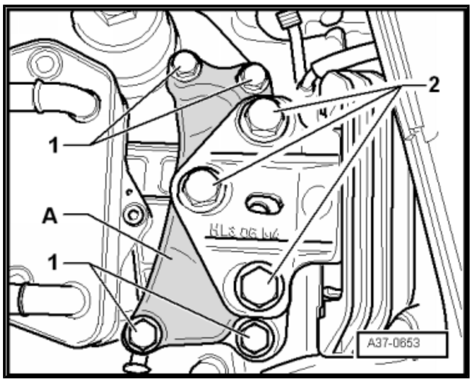
– Disconnect any hoses and cables in the area of the Engine Support Bridge - 10-222A- lifting eyes on the engine.





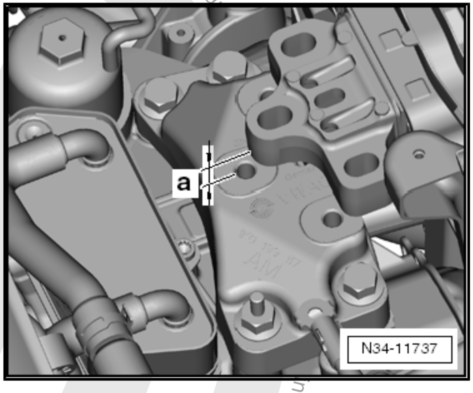
– Support the engine and transmission with the Engine Support Bridge - 10-222A- and Engine Support Bridge - Engine Support Feet - 10-222A/8- . Do not lift up yet.

– Remove the bolts -1 and 2- from the bracket -A-.



– Lower the engine/transmission to the dimension -a- using the spindles on the Engine Support Bridge - 10-222A- .

-a- = approximately 50 mm (2 in.)

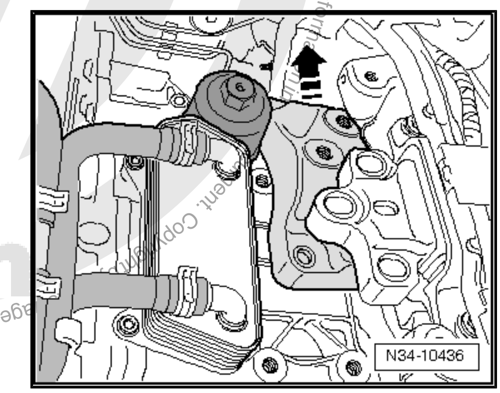


– Remove the transmission bracket in direction of -arrow-.

– Remove the remaining bolts except for one bolt between the engine and the transmission.

– Align Transmission Support - 3282- with Transmission Support - Mounting Plate 42A - 3282/42A- .

– Guide Engine/Gearbox Jack - VAG1383A- under transmission and support transmission. Do not lift up yet.



The transmission is disconnected from the engine in this position.

– Remove the last engine/transmission bolts.

– Remove transmission from engine while being careful of selector lever cable and lower transmission.

Transport transmission and secure to assembly bracket. Refer to ⇒ “5.22 Transmission, Transporting and Securing to the Assembly Stand”, page 130 .

Transmission, installing. Refer to ⇒ “5.23 Transmission, Installing”, page 131 .

5.21 Transmission, Removing

Short Description

The transmission is remove downward by itself.

From above:

The battery, air filter housing and starter are removed. The coolant hoses are clamped off. Before removing the pendulum support, the engine and transmission must be supported.

From underneath:

The pendulum support and the left drive axle are removed. The subframe remains in the vehicle.

Special tools and workshop equipment required

- Engine Support Bridge - 10-222A-
- Transmission Support - Mounting Plate 42A - 3282/42A-
- Engine Support Bridge - Engine Support 18 - 10-222A/18-
- Engine Support Bridge - Engine Support 3 - 10-222A/3-
- Transmission Support - 3282-
- Insert Tool - 18 mm - T10179-
- Engine Support Bridge - Gearbox Bracket - T10346-
- Multipoint Socket - T10035-
- Engine Support Bridge - Engine Support Feet - 10-222A/8-

- Hose Clamps - Up to 40 mm - 3093- , if not available, use Hose Clamps - Up to 25 mm - 3094-
- Engine/Gearbox Jack - VAG1383A-
- Tensioning Strap - T10038-
- Socket and Extended Bit - T10107A- or Long Hex Socket - VAG1669-
- Engine Support - Bracket w/Spindle and Hook - 10-222A/10-
- Engine Support Bridge - Gearbox Bracket - T10346-
- Engine Support Device - 3300A-

Removing

– Lift the vehicle, all 4 lift points of the hoist must be at the same height.

– Remove the left front wheel.

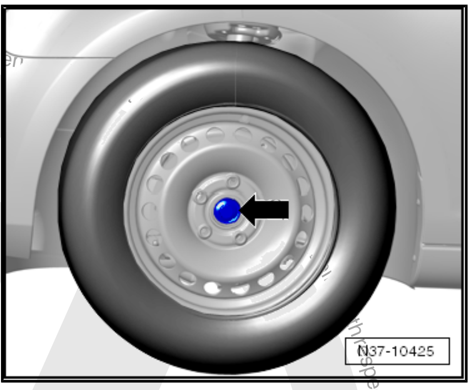
– Move the selector lever into the “P” position.

Note

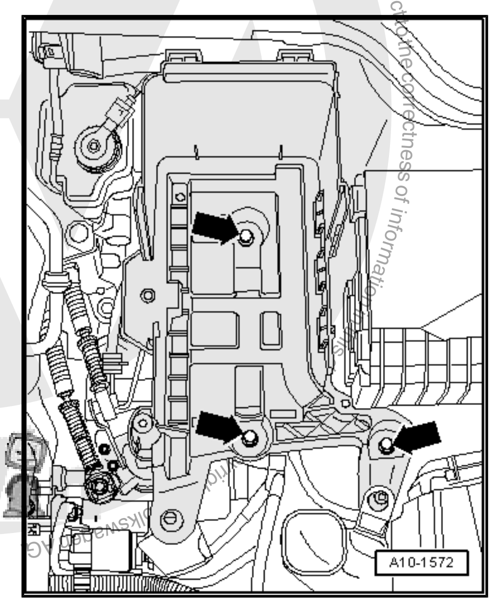
Do not lower the vehicle onto the floor after loosening the drive axle bolt.

– Apply the brake pedal in order to remove the left drive axle bolt -arrow-. (2nd technician required).

– Remove the air filter housing. Refer to ⇒ Engine Mechanical, Fuel Injection and Ignition; Rep. Gr. 24 ; Removal and Installation .



– Remove the battery, the battery tray bolts -arrows- and tray.

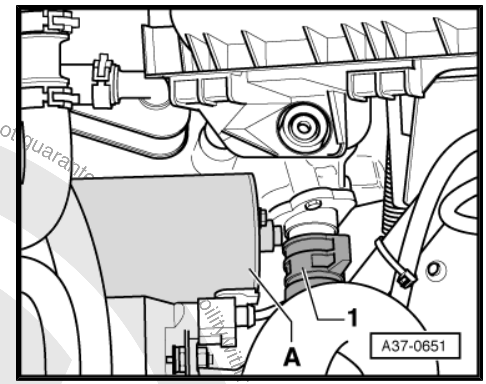


– Disconnect the connector -1- from the DSG Transmission Mechatronic - J743- .

– Remove the starter -A-. Refer to ⇒ Electrical Equipment; Rep. Gr. 27 ; Removal and Installation .

Remove the lower starter bolt first.

– Disconnect the ground cable from the bracket.



– Remove the selector lever cable from the transmission.

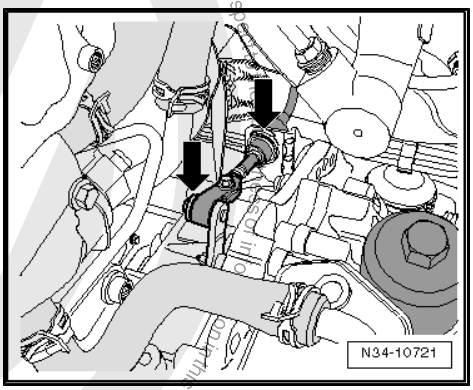
Use pliers to remove the lock washer. Do not use a sharp tool otherwise the rubber grommet on the cable may get damaged.

Always replace both lock washers -arrows-.

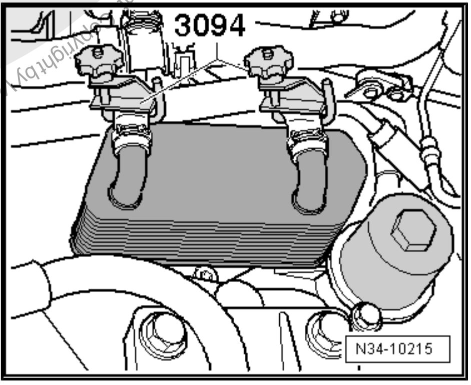
– Remove the cable from the transmission cable bracket. Do not bend the cable.

The cable can be removed later when the transmission is lowered. Pay attention to the cable while the transmission is being lowered.

Later, install the small lock washer only after having checked and adjusted the cable. Refer to ⇒ “4.1 Selector Lever Cable, Checking”, page 47 .

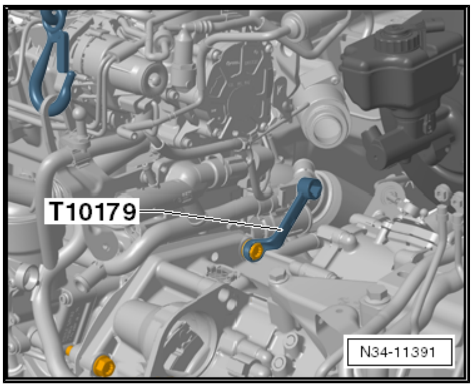


– Clamp off the coolant hoses to the oil cooler using either the Hose Clamps - Up to 40 mm - 3093- or the Hose Clamps - Up to 25 mm - 3094- and remove the hoses.



– Remove the upper engine to transmission bolts.

These tools are suitable for this.



Special tools and workshop equipment required

- Multipoint Socket - T10035-
- Socket, Multi Point Bit XZN 14 - T10061-
- Bits for VAG1331/13 - T10099-
- Insert Tool - 18 mm - T10179-

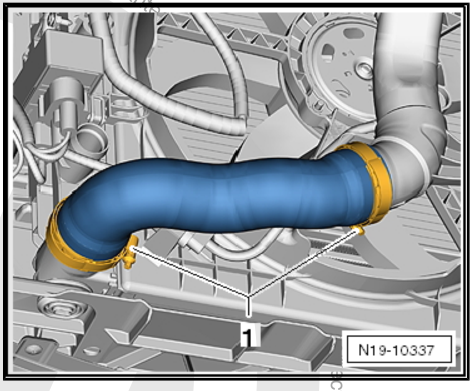
It Is Advisable to Complete the Work under the Vehicle Now. This Prevents the Weight of the Engine from Resting on the Engine Support Bridge and Therefore on the Body for a Long Period of Time.

– Remove the noise insulation and lower section of the left front wheel housing liner if necessary. Refer to the following:

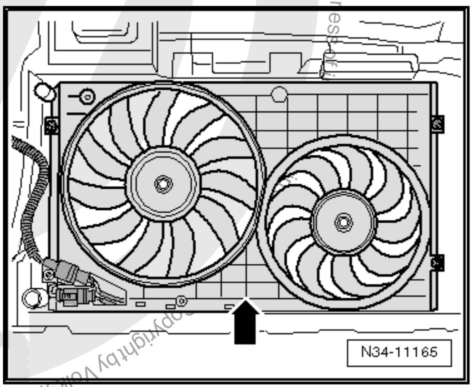
For the noise insulation. Refer to ⇒ Body Exterior; Rep. Gr. 50 ; Description and Operation .

For the wheel housing liner. Refer to ⇒ Body Exterior; Rep. Gr. 66 ; Removal and Installation .

– Remove the charge air hose between the charge air cooler and the charge air pipe. Refer to ⇒ Engine Mechanical, Fuel Injection and Ignition; Rep. Gr. 21 ; Description and Operation .

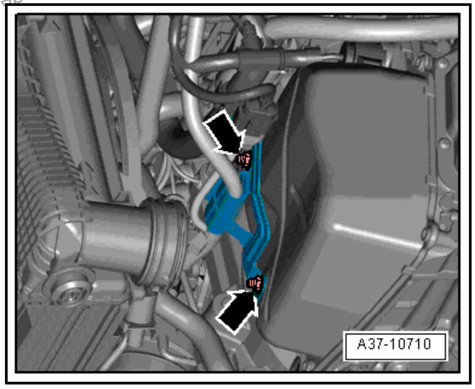


– Remove the fan shroud -arrow-. Refer to ⇒ Engine Mechanical, Fuel Injection and Ignition; Rep. Gr. 19 ; Removal and Installation .

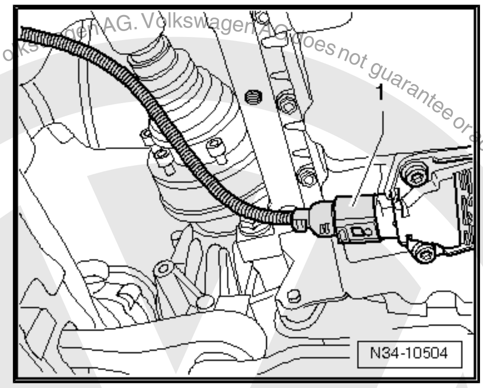


– Remove the wire bracket from the large transmission cover (two M6 nuts).

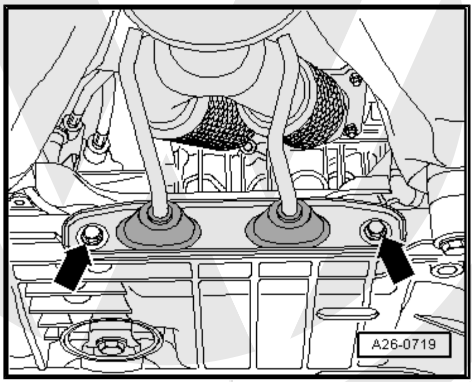
Tightening Specification: 10 Nm



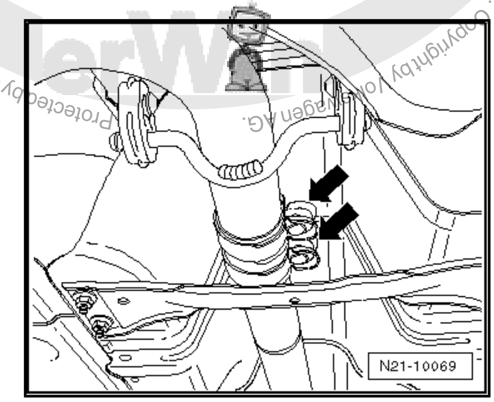
- Disconnect the connector -1- from the oil level thermal sensor .



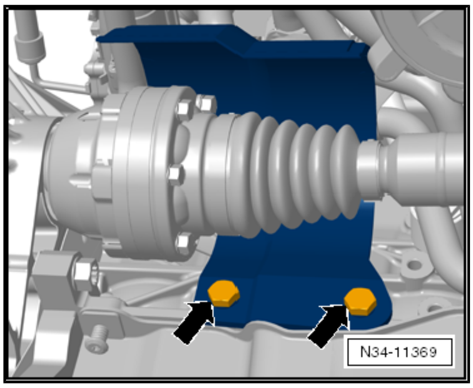
- Remove the exhaust system suspended mount bolts -arrows- from the subframe.



- Disconnect the exhaust system at the double clamp -arrows-.
- Either tie up the front exhaust pipe or lay it on the tunnel bridge.
- Remove the left drive axle. Refer to ⇒ Suspension, Wheels, Steering; Rep. Gr. 40 ; Removal and Installation .

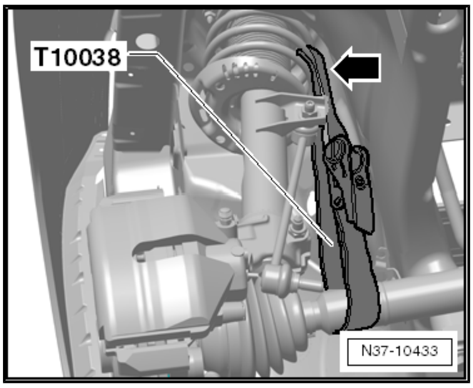


- Remove the right drive axle heat shield bolts -arrows- and shield, if equipped.
- Remove the right drive axle from the transmission. Refer to ⇒ Suspension, Wheels, Steering; Rep. Gr. 40 ; Removal and Installation .

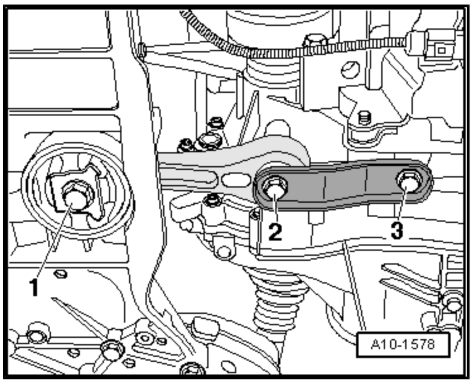


- Secure the drive axle to the strut using a Tensioning Strap -T10038- .

Do not damage the surface of the dive axle.

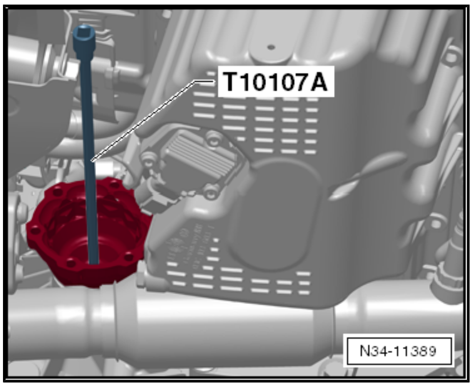


- Remove the pendulum support. First, remove the bolt -1- then remove the bolts -2 and 3-.



- Remove the right transmission flange shaft bolt and shaft using the Socket And Extended Bit - T10107A- .

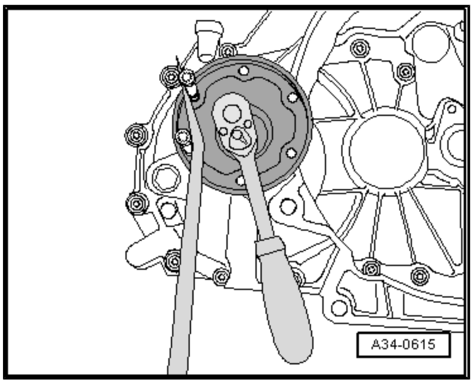
The bolt has a 6 mm inner hex socket. It can also be removed and installed using the Long Hex Socket - VAG1669- .

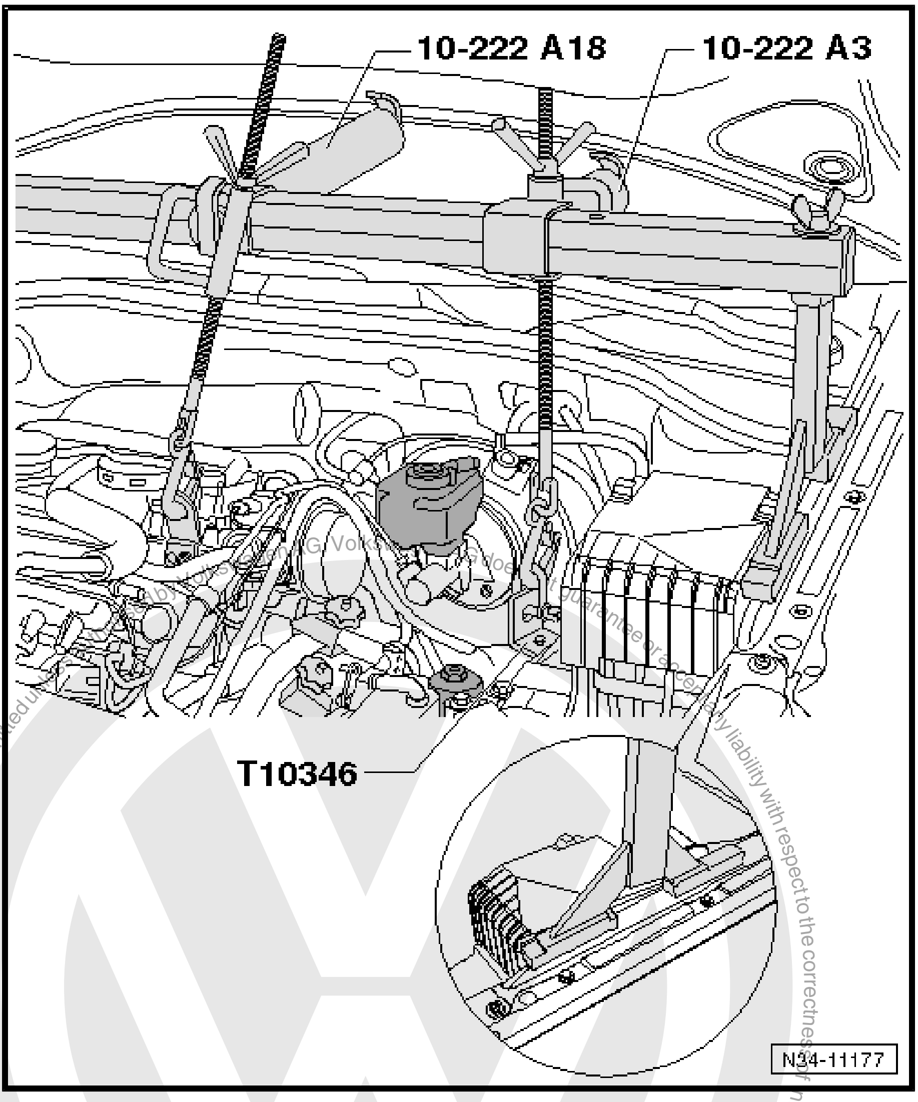


- To remove and install the flange shaft, install 2 bolts into the flange and counter hold it using a pry bar.
- Remove the flange shaft and the pressure spring.
- Plug the opening for the flange shaft with a suitable plug.
- When installing, press the flange shaft against the transmission with a pry bar and install the bolt.

Tightening Specification: 30 Nm

- Remove the filler pieces from both fender upper edges.
- Disconnect any hoses and wires in the area of the lifting eyes on the engine.

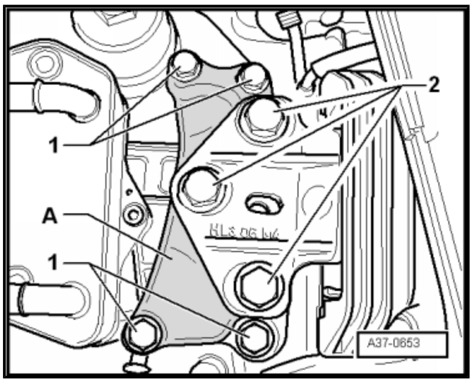




– Install the Engine Support Bridge - 10-222A- on the upper longitudinal member.

> **Caution**
>
> *Installing the engine support bridge on the fenders will damage them.*

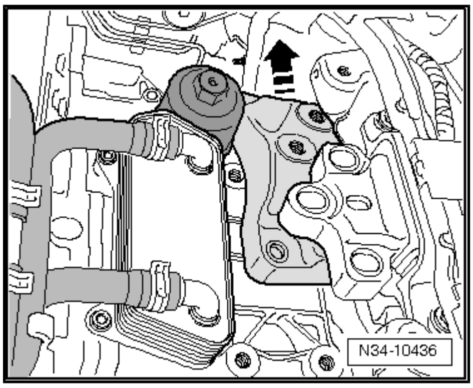
– Support the engine and the transmission using the Engine Support Bridge - 10-222A- and Engine Support - Bracket w/ Spindle and Hook - 10-222A/10- . Do not lift up yet.



- Remove the transmission mount to transmission mount bracket bolts -2- and the transmission mount bracket -A- to transmission bolts -A-.
- Lower the engine/transmission using the spindle until it is possible to remove the bracket -A-.

Three turns maximum on each spindle is enough to remove the bracket -arrow-.

In many cases it is not necessary to lower the spindles when removing the transmission later.



Remove the bracket in direction of -arrow-.

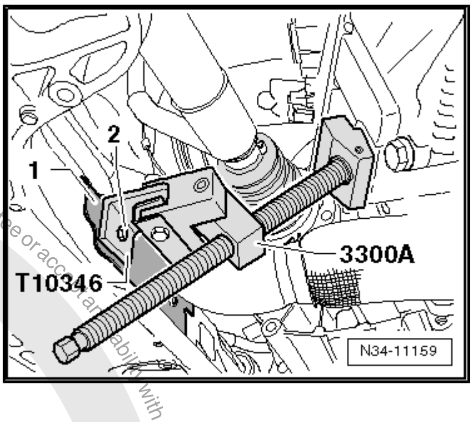
- If necessary, remove the secondary air injection pump motor bracket and pump and lay it aside.
- Remove the remaining bolts except for one bolt between the engine and transmission.

It Is Advisable to Leave a Bolt That Is Easily Accessible.

- Remove the right bolt for the heat shield -1- from the subframe.
- Install the Engine Support Bridge - Gearbox Bracket - T10346- to the subframe with a bolt -2-.

Bolt -2- = M6 x 20

- Attach the Engine Support Device - 3300A- to the Engine Support Bridge - Gearbox Bracket - T10346- .
- If possible, place the support device against the engine crankcase.
- Push the engine and transmission far enough forward until there is enough clearance to remove the transmission.



Note

Be careful not to bend or damage the connecting lines, hoses and radiator when moving the engine/transmission subassembly.

- Align the Transmission Support - 3282- with the Transmission Support - Mounting Plate 42A - 3282/42A- .
- Guide the Engine/Gearbox Jack - VAG1383A- under the transmission and support it. Do not lift up yet.

The transmission is disconnected from the engine in this position.

- Remove the last engine to transmission bolt.
- Separate the transmission from the engine while being careful of selector lever cable and lower the transmission.

Transport the transmission and secure it to the assembly stand. Refer to
⇒ “5.22 Transmission, Transporting and Securing to the Assembly Stand”, page 130 .

Install the transmission. Refer to
⇒ “5.23 Transmission, Installing”, page 131 .

5.22 Transmission, Transporting and Securing to the Assembly Stand

Special tools and workshop equipment required

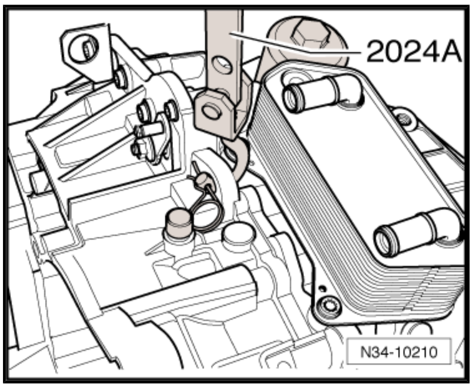
- Engine Sling - 2024A-
- Engine/Gearbox Support Shackle (2 pc.) - 10-222A/12-
- Transmission Support Jig - 3336-

Always secure heavy parts when transporting.

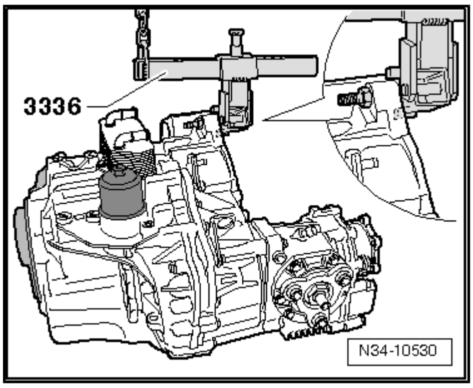
Remember there is oil in the transmission. Do not turn the transmission with the vents facing downward when transporting or when it is on the assembly stand. The oil will leak out.

Transporting

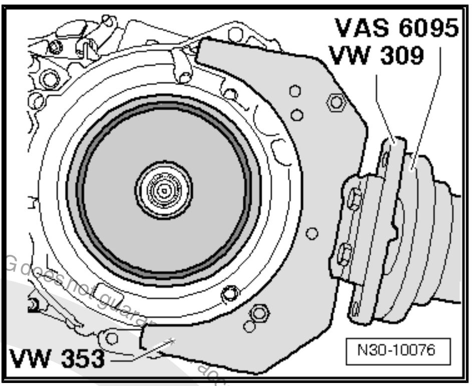
– Use appropriate lifting tools, for example part of the Engine Sling - 2024A- and the Engine/Gearbox Support Shackle (2 pc.) - 10-222A/12- (not illustrated).


2024A
N34-10210

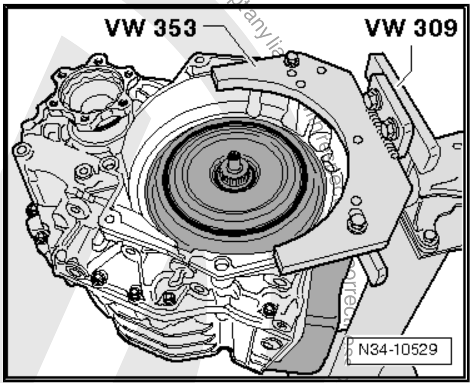
The transmission can also be lifted using the Transmission Support Jig - 3336- .


3336
N34-10530

Example: Mounting the All Wheel Drive (AWD) Transmission onto the Assembly Stand


VAS 6095
VW 309
VW 353
N30-10076

Example: Mounting the Front Wheel Drive (FWD) Transmission onto the Assembly Stand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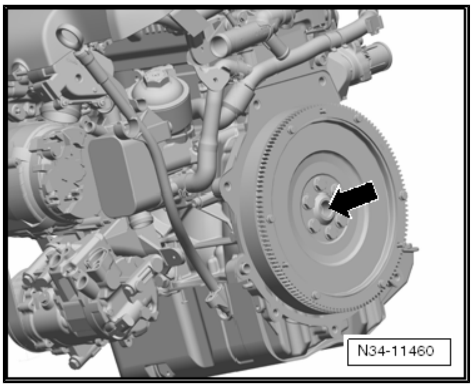
VW 309
N34-10529

5.23 Transmission, Installing

Install in reverse order of removal. However, important steps should be named here:



- Replace the needle bearing -arrow- in the crankshaft. Refer to ⇒ Rep. Gr. 13 ; Crankshaft; Needle Bearing in Crankshaft, Replacing .
- Lightly oil the pins and splines on the transmission with High Temperature Grease - G052133A2- .
- Make sure both alignment sleeves between the engine and the transmission fit correctly.
- Make sure the intermediate plate fits correctly.

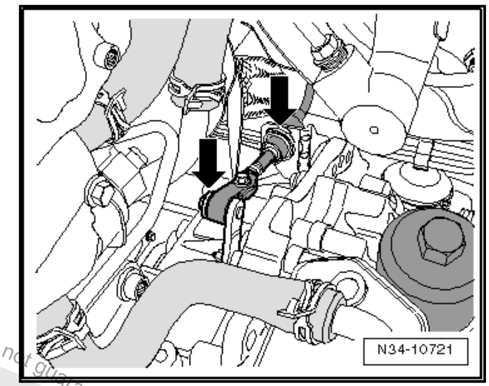
Engine and Transmission Must Be Brought Together by Hand until Both Flanges Touch All Around!

If this is not the case, it will »not run correctly!«

- Adjust the transmission mount until the engine and transmission »are aligned«.

Pay Attention to the Selector Lever Cable When Lifting the Transmission. Guide the Cable into the Cable Bracket as Early as Possible.

Do not grease cable.



- Selector lever cable lock washers -arrows- must be replaced.
- Check and adjust the selector lever cable. Refer to ⇒ “4.1 Selector Lever Cable, Checking”, page 47 .
- Check the coolant level and fill if necessary. Refer to ⇒ Rep. Gr. 19 .
- Check the transmission fluid level and fill if necessary. Refer to ⇒ “1.2 Transmission Oil Level, Checking and Filling”, page 28

Tightening Specifications. Refer to One of the Following:

GTI (from 2010) with a 2.0L TFSI engine, Passat and CC. Refer to ⇒ “3.2 Transmission to Engine Tightening Specifications”, page 41 .

GTI (2006-2009) and Eos with a 2.0L TFSI engine. Refer to ⇒ “3.3 Transmission to Engine Tightening Specifications”, page 42 .

Golf (from 2010) with a 2.0L TDI engine. Refer to ⇒ “3.4 Transmission to Engine Tightening Specifications”, page 43 .

Eos with a 3.2L engine. Refer to ⇒ “3.5 Transmission to Engine Tightening Specifications”, page 44 .

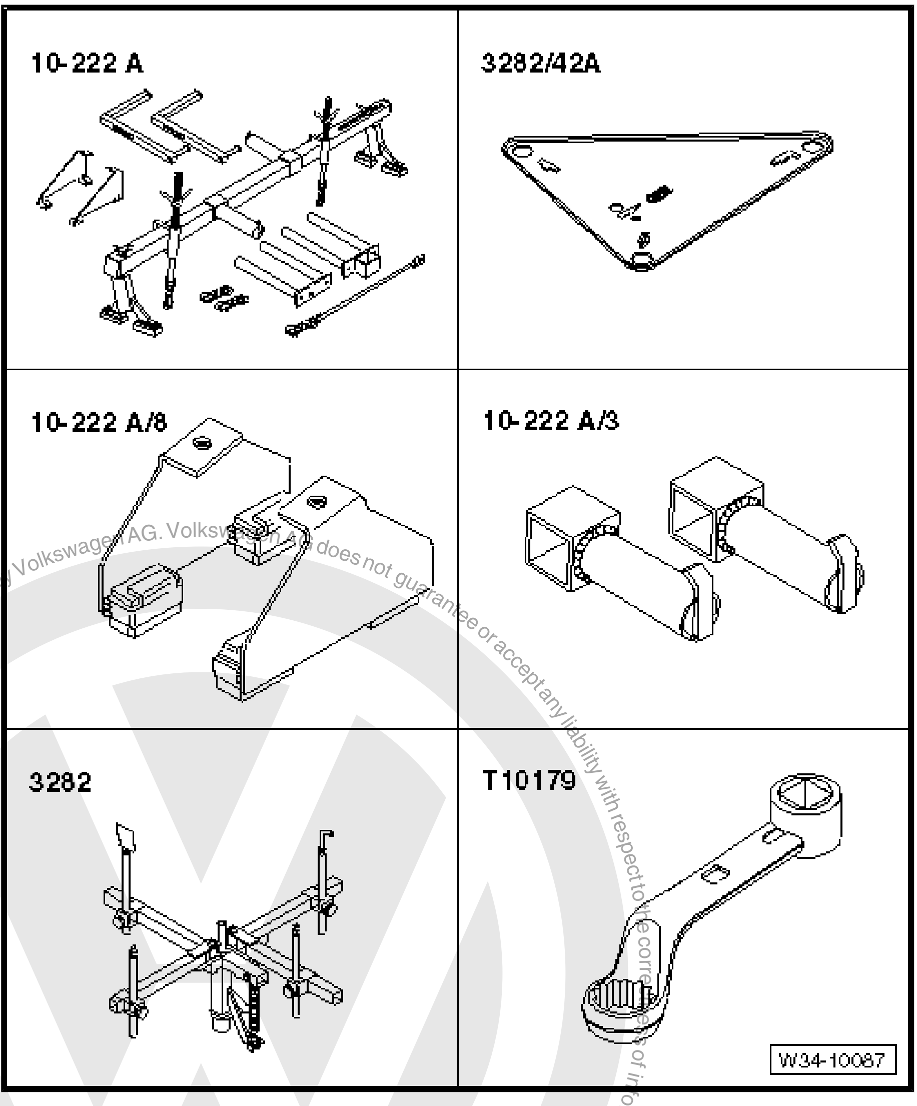
R32. Refer to ⇒ “3.6 Transmission to Engine Tightening Specifications”, page 45 .

All others. Refer to ⇒ “3.1 Fastener Tightening Specifications”, page 40 .

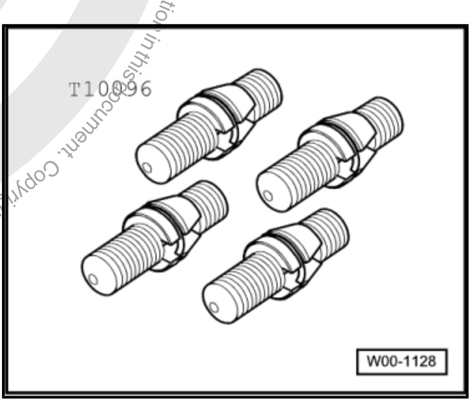
6 Special Tools

Special tools and workshop equipment required

- Engine Support Bridge - 10-222A-
- Transmission Support - Mounting Plate 42A - 3282/42A-
- Engine Support Bridge - Engine Support Feet - 10-222A/8-
- Engine Support Bridge - Engine Support 3 - 10-222A/3-
- Transmission Support - 3282-
- Insert Tool - 18 mm - T10179-


10-222 A
3282/42A
10-222 A/8
10-222 A/3
3282
T10179
W34-10087

- Locating Pins - T10096-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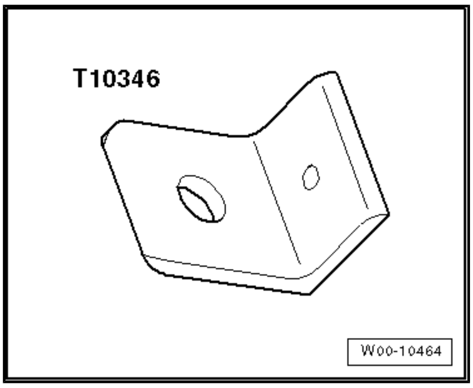
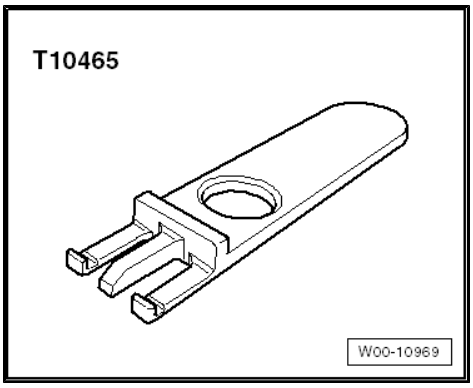
W00-1128

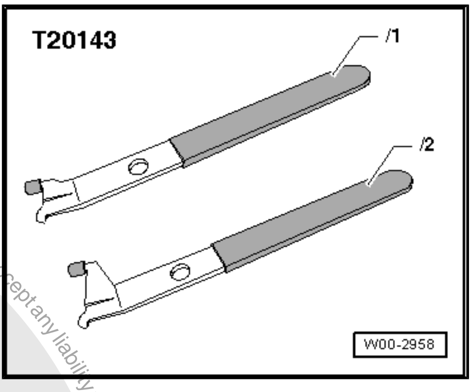
- Engine Support Bridge - Gearbox Bracket - T10346-


T10346
W00-10464

- Speed Sender Release Tool - T10465-


T10465
W00-10969

- Puller - Crankshaft/Power Steering Seal - T20143-


T20143
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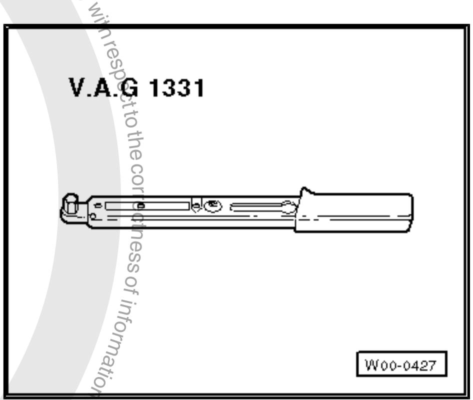
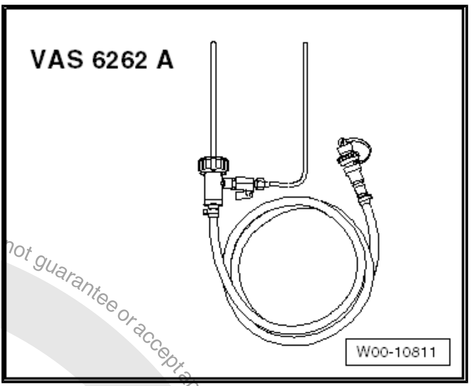
/2
W00-2958

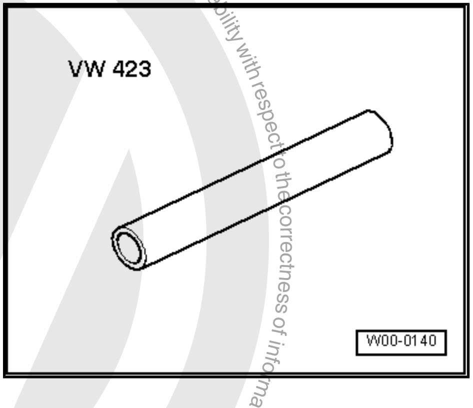
- Torque Wrench 1331 5-50Nm - VAG1331-


V.A.G 1331
W00-0427

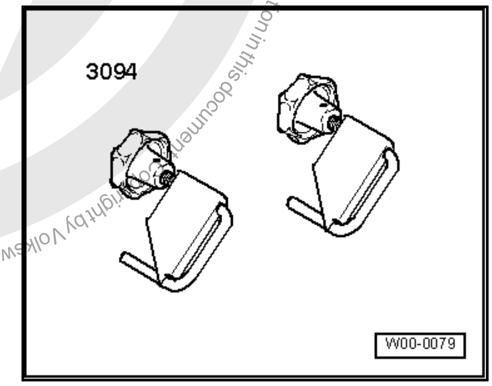
- ♦ Adapter for Oil Filling - VAS6262A-



- ♦ Press Piece - Shift Rod/Alternator - VW423-



- ♦ Hose Clamps - Up to 25 mm - 3094-

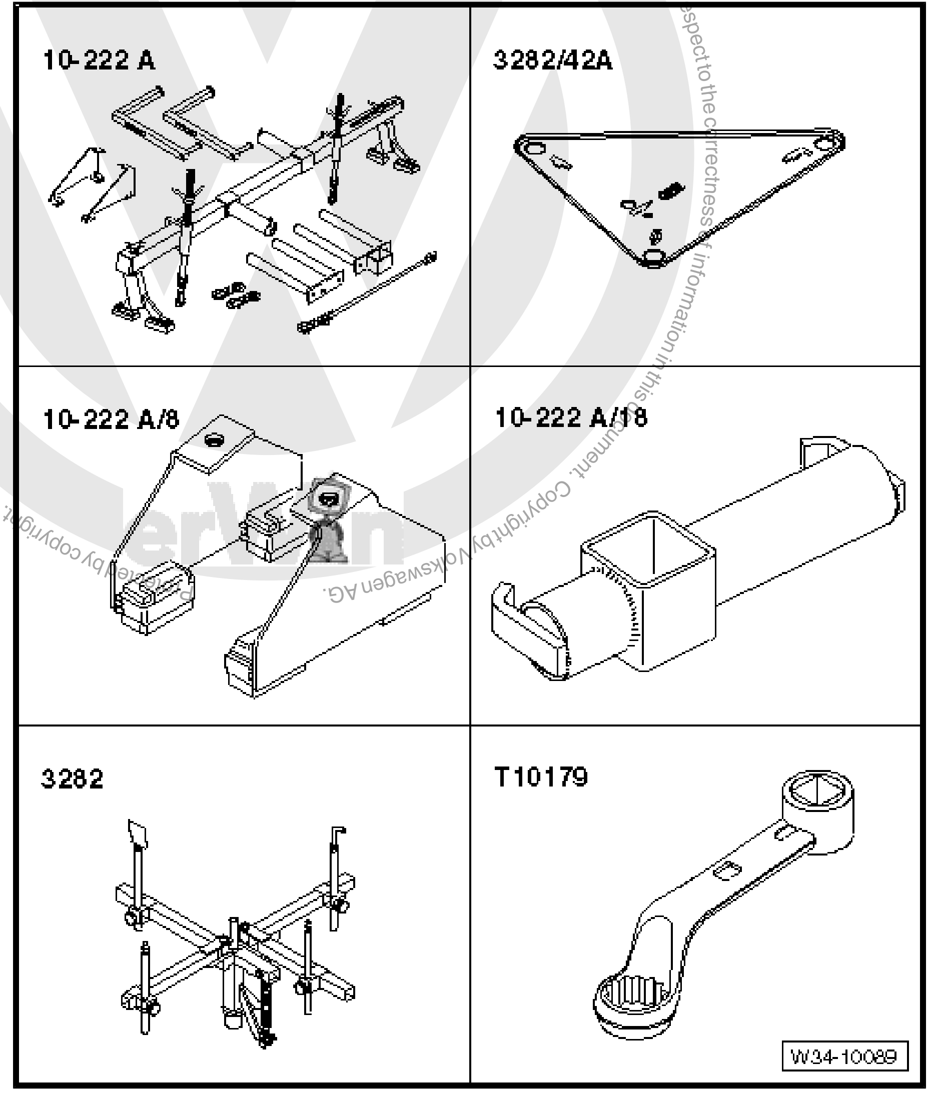


- ♦ Not illustrated:
- ♦ Used Oil Collection And Extraction Unit - SMN372500-
- ♦ Tensioning Strap - T10038-
- ♦ Engine/Gearbox Jack - VAG1383A-
- ♦ Engine/Gearbox Support Shackle (2 pc.) - 10-222A/12-
- ♦ Engine Support Bridge - Spindle Spacer - 10-222A/17-
- ♦ Engine Sling - 2024A-
- ♦ Hose Clamps - Up to 40 mm - 3093-
- ♦ Transmission Support Jig - 3336-
- ♦ Vehicle Diagnosis Tester

7 Special Tools

Special tools and workshop equipment required

- Engine Support Bridge -10-222A-
- Transmission Support - Mounting Plate 42A - 3282/42A-
- Engine Support Bridge - Engine Support Feet - 10-222A/8-
- Engine Support Bridge - Engine Support 18 - 10-222A/18-
- Transmission Support - 3282-
- Insert Tool - 18 mm - T10179-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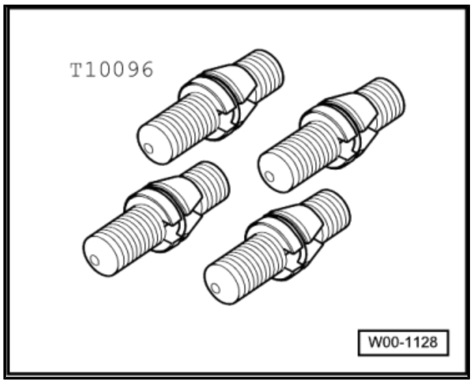
3282/42A
10-222 A/8
10-222 A/18
3282
T10179
W34-10089

- Locating Pins - T10096-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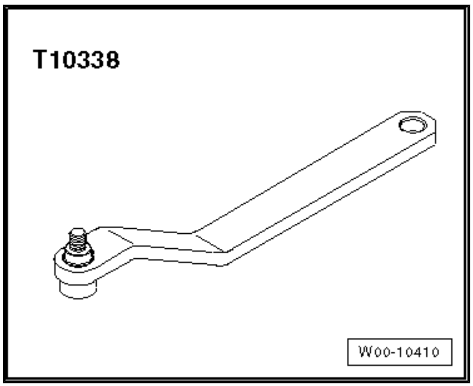
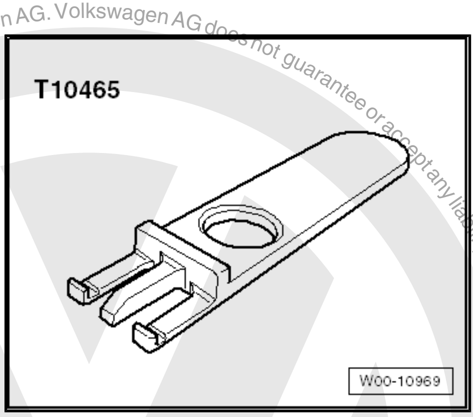
W00-1128

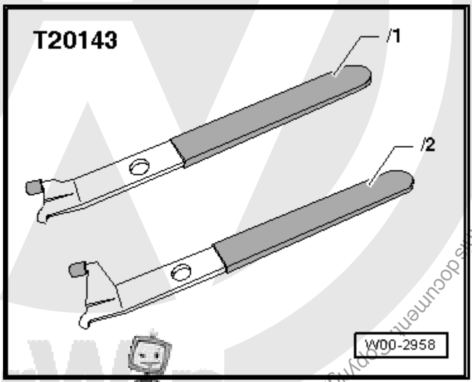
- Engine Support Bracket - T10338-


T10338
W00-10410

- Speed Sender Release Tool - T10465-


T10465
W00-10969

- Puller - Crankshaft/Power Steering Seal - T20143-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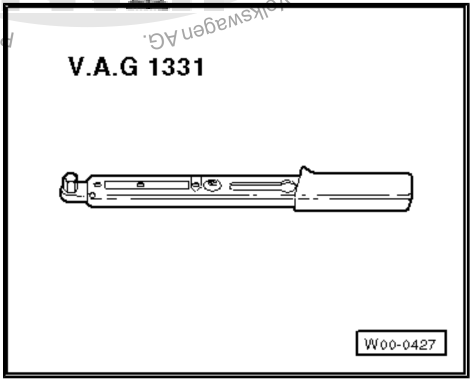
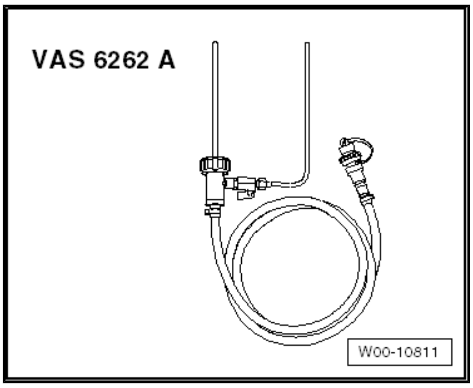
W00-2958

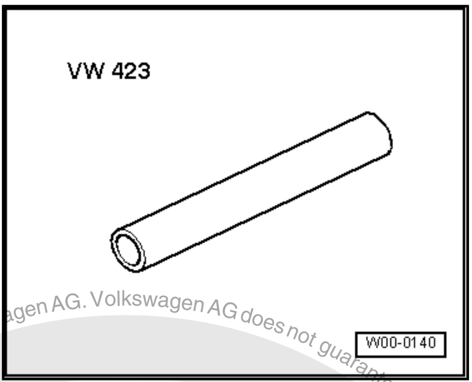
- Torque Wrench 1331 5-50Nm - VAG1331-


V.A.G 1331
W00-0427

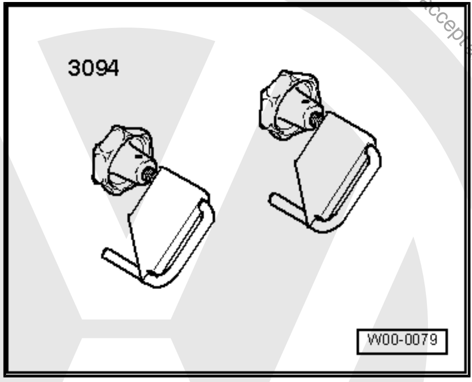
- Adapter for Oil Filling - VAS6262A-



- Press Piece - Shift Rod/Alternator - VW423-



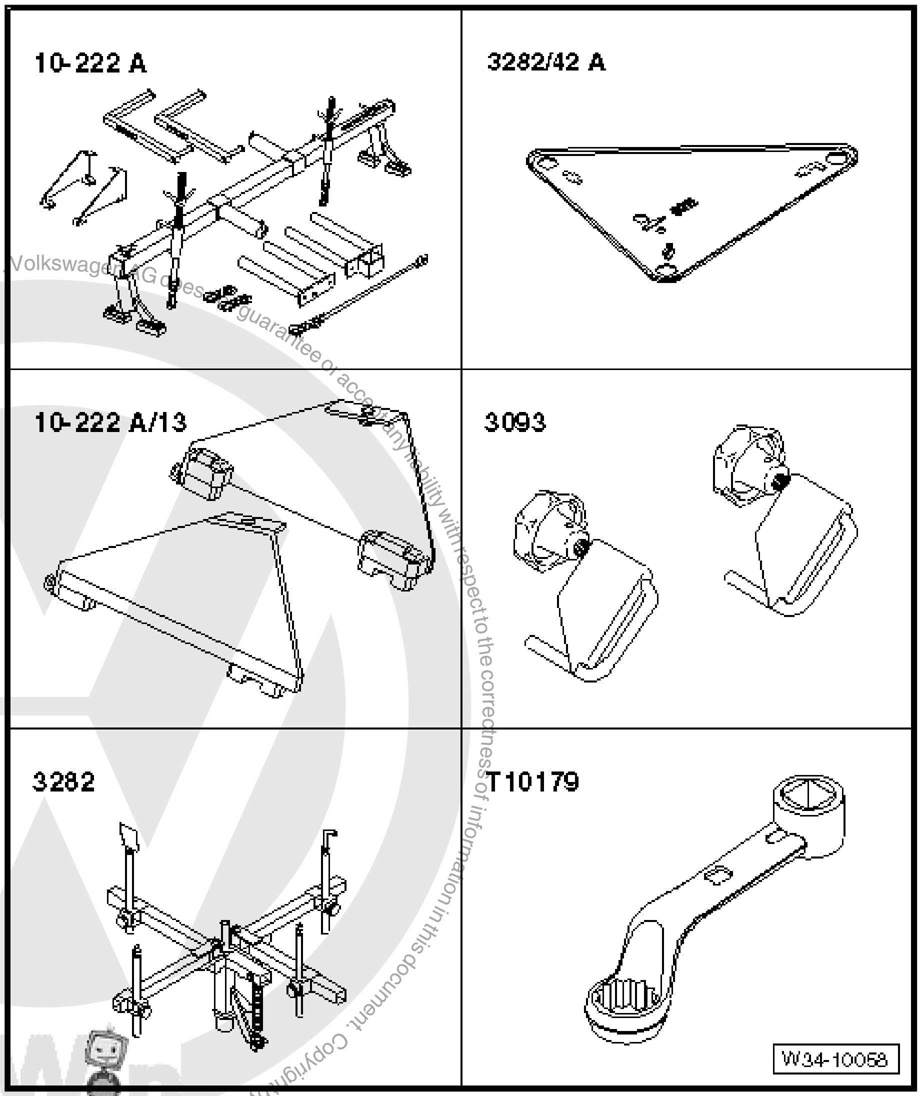
- Hose Clamps - Up to 25 mm - 3094-



- Not illustrated:
- Used Oil Collection And Extraction Unit - SMN372500-
- Tensioning Strap - T10038-
- Engine/Gearbox Jack - VAG1383A-
- Engine/Gearbox Support Shackle (2 pc.) - 10-222A/12-
- Engine Support Bridge - Spindle Spacer - 10-222A/17-
- Engine Sling - 2024A-
- Hose Clamps - Up to 40 mm - 3093-
- Transmission Support Jig - 3336-
- Vehicle Diagnosis Tester

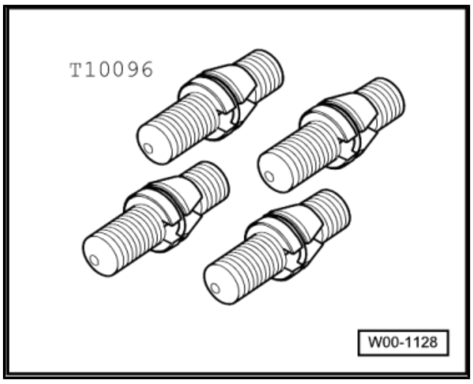
8 Special Tools

- Engine Support Bridge - 10-222A-
- Transmission Support - Mounting Plate 42A - 3282/42A-
- Engine Support Bridge - Gearbox Adapter - 10-222A/13-
- Hose Clamps - Up to 40 mm - 3093-
- Transmission Support - 3282-
- Insert Tool - 18 mm - T10179-


10-222 A
3282/42 A
10-222 A/13
3093
3282
T10179
W34-10058

Special tools and workshop equipment required

- Locating Pins - T10096-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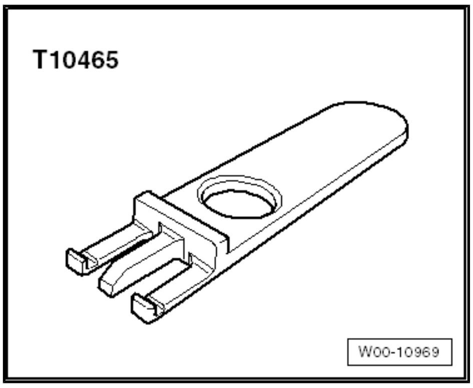
W00-1128

- Speed Sender Release Tool - T10465-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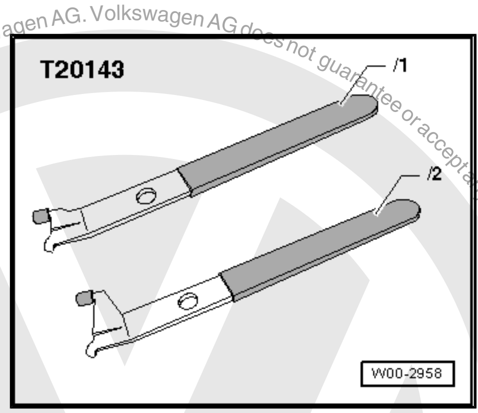
W00-10969

- Puller - Crankshaft/Power Steering Seal - T20143-


T20143
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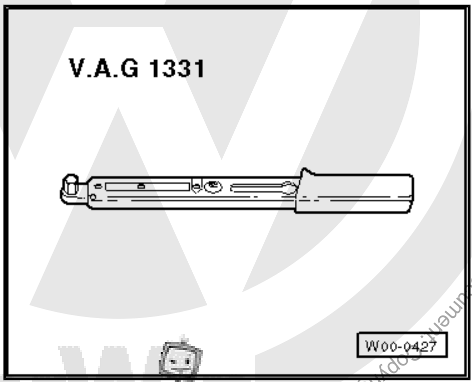
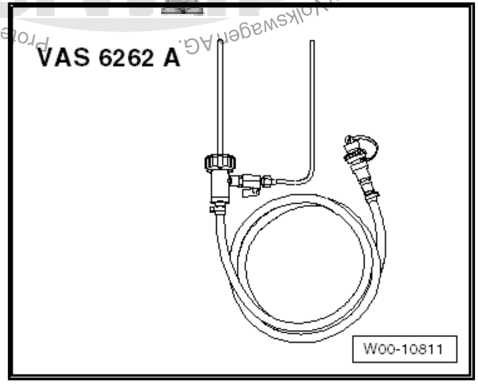
W00-2958

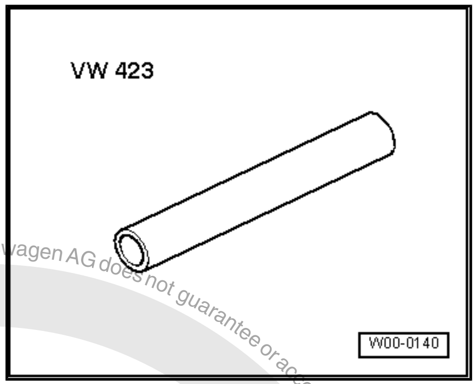
- Torque Wrench 1331 5-50Nm - VAG1331-


V.A.G 1331
W00-0427

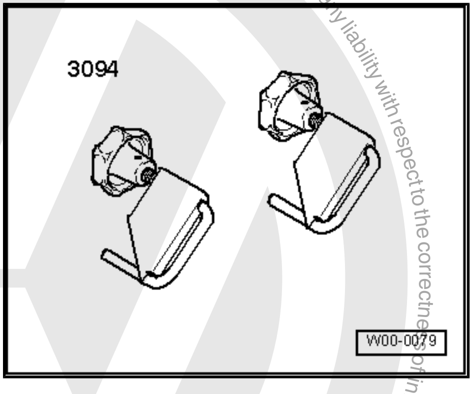
- Adapter for Oil Filling - VAS6262A-


VAS 6262 A
W00-10811

- Press Piece - Shift Rod/Alternator - VW423-



- Hose Clamps - Up to 25 mm - 3094-

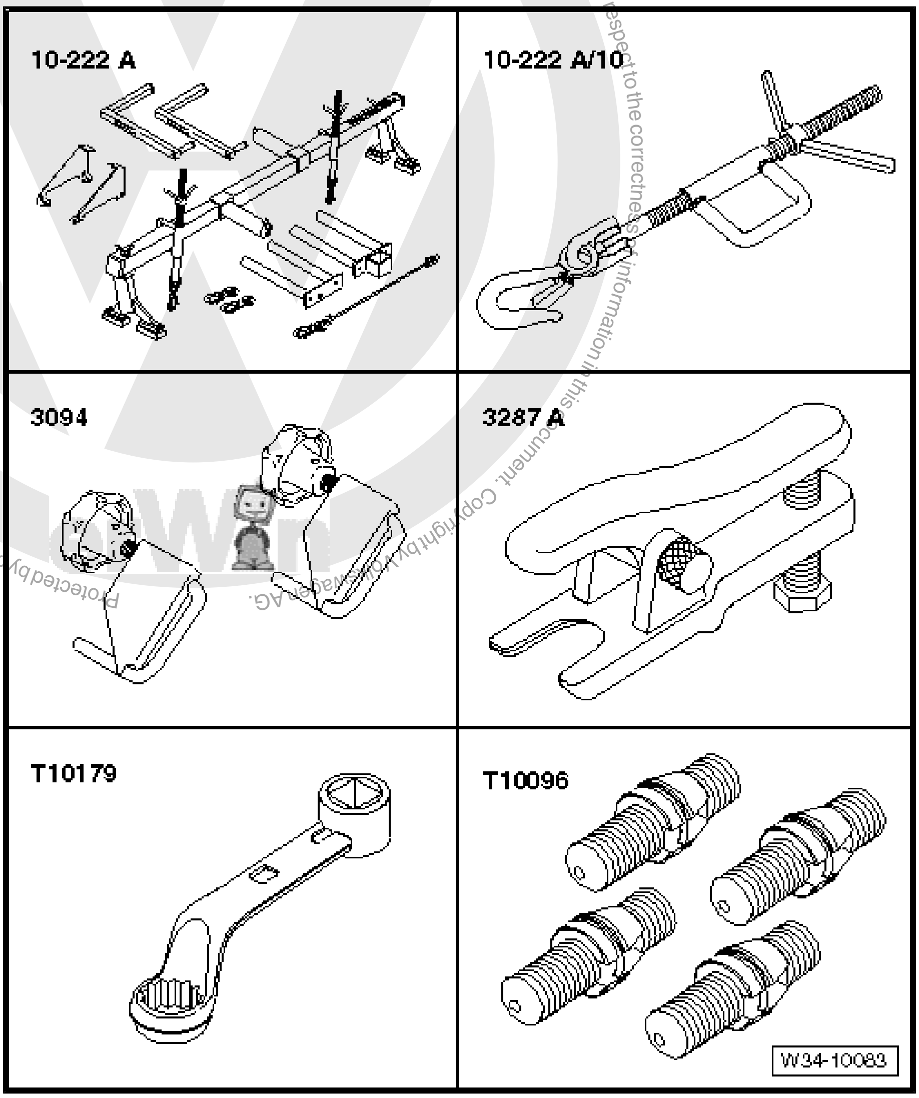


- Not illustrated:
- Used Oil Collection And Extraction Unit - SMN372500-
- Tensioning Strap - T10038-
- Engine/Gearbox Jack - VAG1383A-
- Engine Support - Bracket w/Spindle and Hook - 10-222A/10-
- Shackle - 10-222A/12-
- Engine Sling - 2024A-
- Transmission Support - Pins 29 - 3282/29-
- Adjustment Plate - 3282/59-
- Transmission Support Jig - 3336-
- Vehicle Diagnosis Tester

9 Special Tools

Special tools and workshop equipment required

- Engine Support Bridge - 10-222A-
- Bracket with Spindle and Hook - 10-222A/10-
- Hose Clamps - Up to 25 mm - 3094-
- Ball Joint Puller - 3287A-
- Insert Tool - 18 mm - T10179-
- Locating Pins - T10096-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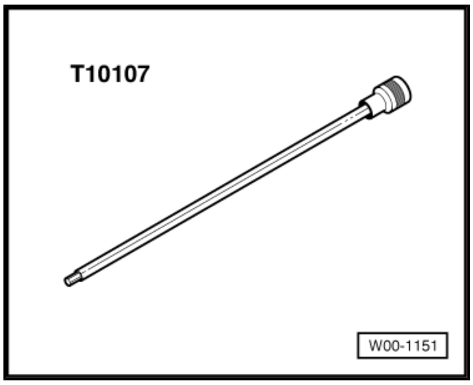
10-222 A/10
3094
3287 A
T10179
T10096
W34-10083

- Socket and Extended Bit - T10107A-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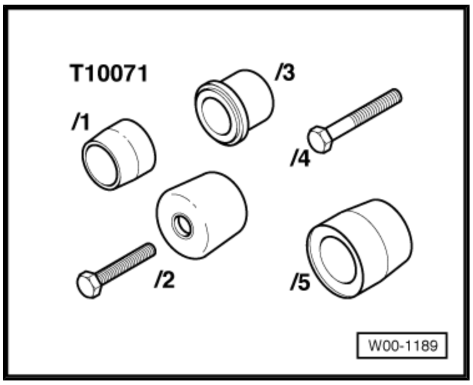
W00-1151

- Seal Installer - Camshaft - T10071-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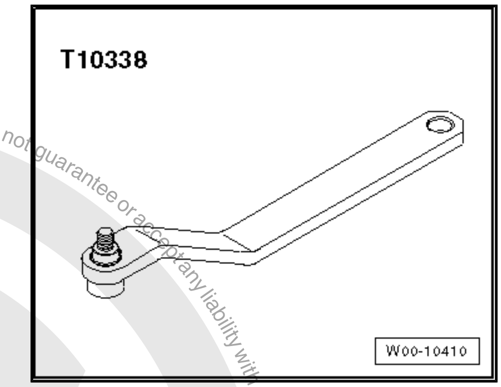
/3
/4
/5
W00-1189

- Engine Support Bracket - T10338-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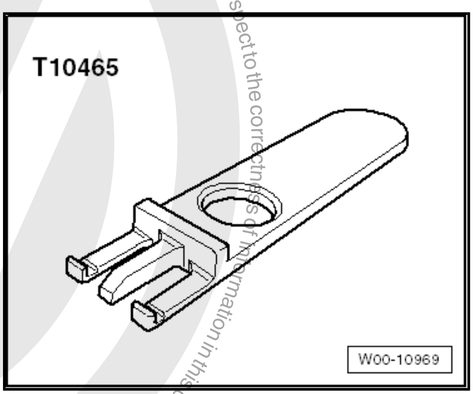
W00-10410

- Speed Sender Release Tool - T10465-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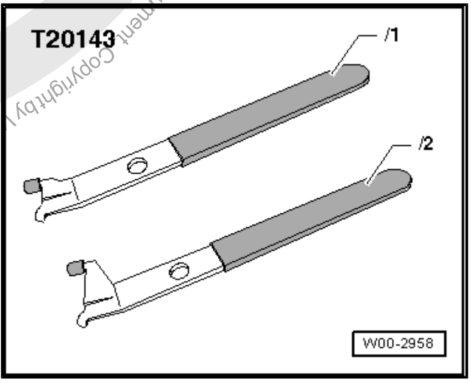
- Puller - Crankshaft/Power Steering Seal - T20143-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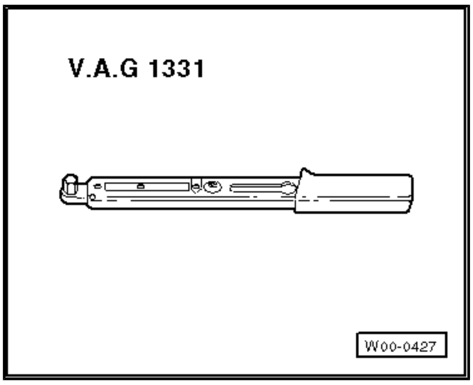
W00-2958

- Torque Wrench 1331 5-50Nm - VAG1331-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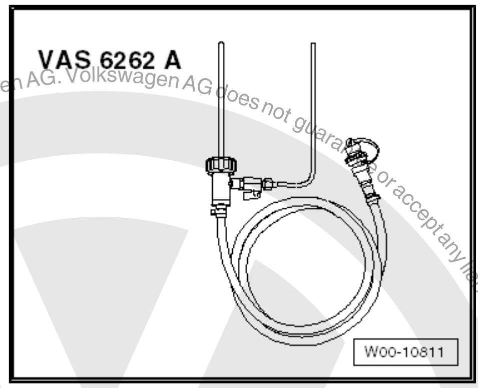
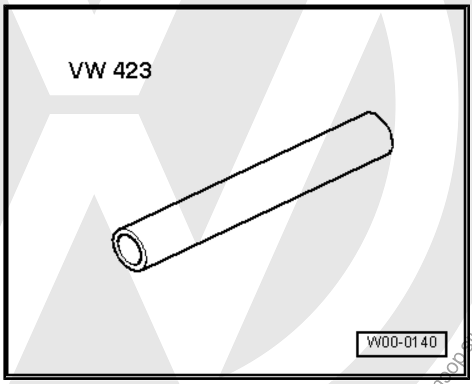
W00-0427

- Adapter for Oil Filling - VAS6262A-


VAS 6262 A
W00-10811

- Press Piece - Shift Rod/Alternator - VW423-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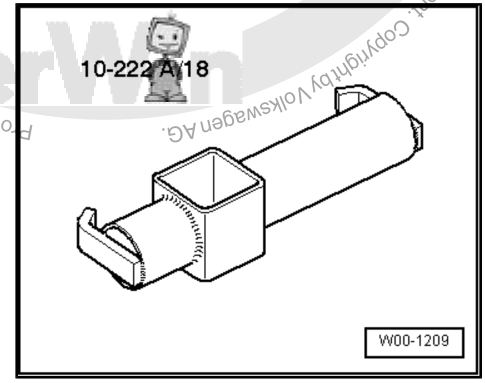
W00-0140

- Engine Support Bridge - Engine Support 18 - 10-222A/18-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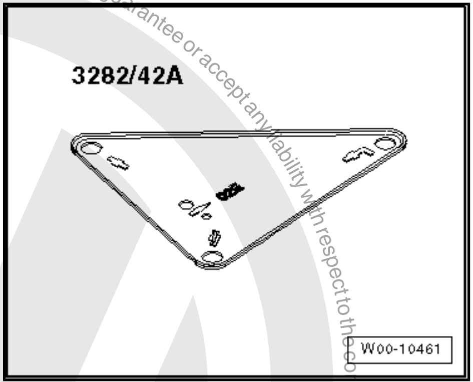
W00-1209

- Transmission Support - Mounting Plate 42A - 3282/42A-

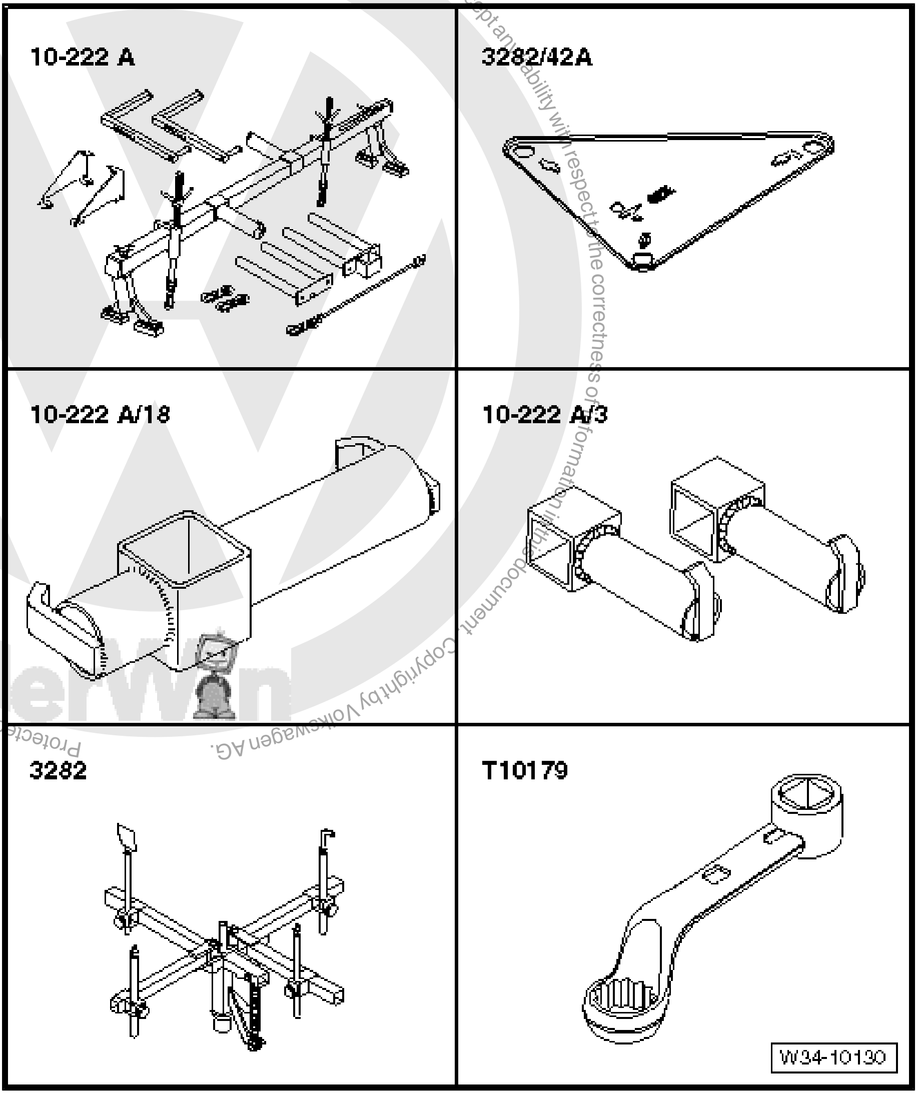


- Not illustrated:
- Used Oil Collection And Extraction Unit - SMN372500-
- Tensioning Strap - T10038-
- Engine/Gearbox Support Shackle (2 pc.) - 10-222A/12-
- Engine Sling - 2024A-
- Adjustable Hooks - 3004-
- Hose Clamps - Up to 40 mm - 3093-
- Transmission Support Jig - 3336-
- Vehicle Diagnosis Tester

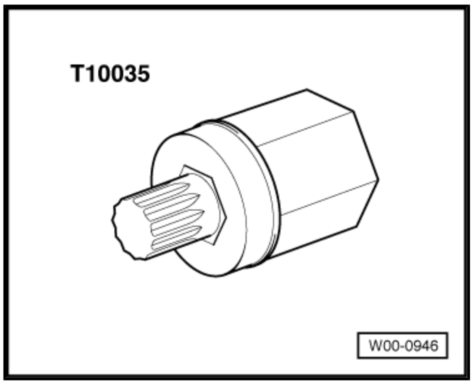
10 Special Tools

Special tools and workshop equipment required

- ♦ Engine Support Bridge - 10-222A-
- ♦ Transmission Support - Mounting Plate 42A - 3282/42A-
- ♦ Engine Support Bridge - Engine Support 18 - 10-222A/18-
- ♦ Engine Support Bridge - Engine Support 3 - 10-222A/3-
- ♦ Transmission Support - 3282-
- ♦ Insert Tool - 18 mm - T10179-


10-222 A
3282/42A
10-222 A/18
10-222 A/3
3282
T10179
W34-10130

- ♦ Multipoint Socket - T10035-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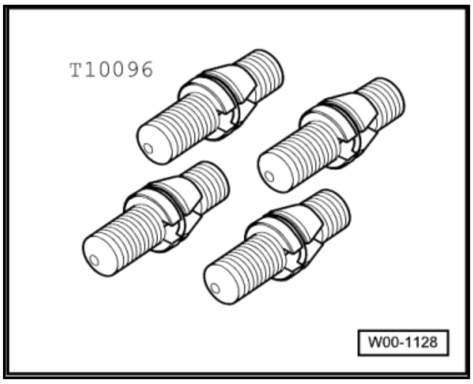
W00-0946

- Locating Pins - T10096-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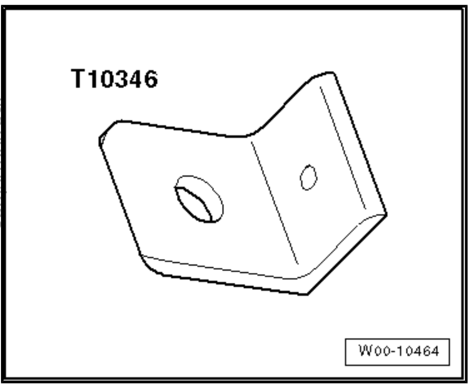
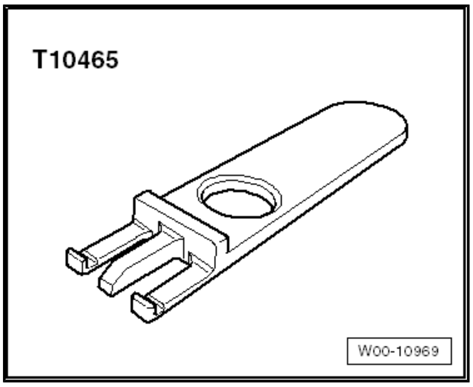
W00-1128

- Engine Support Bridge - Gearbox Bracket - T10346-


T10346
W00-10464

- Speed Sender Release Tool - T10465-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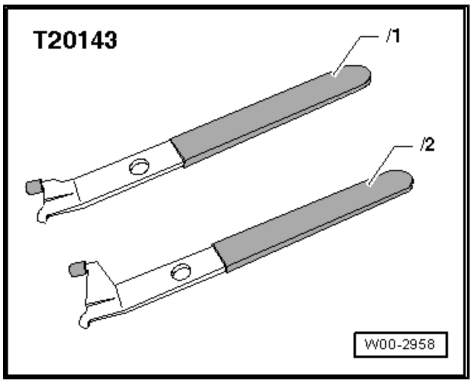
W00-10969

- Puller - Crankshaft/Power Steering Seal - T20143-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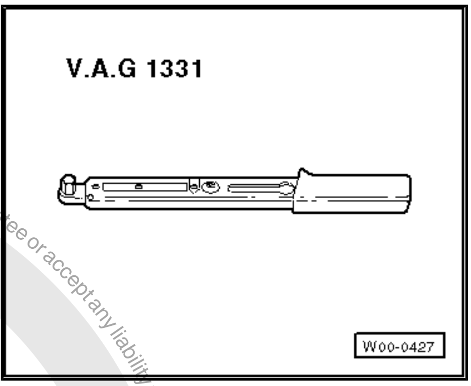
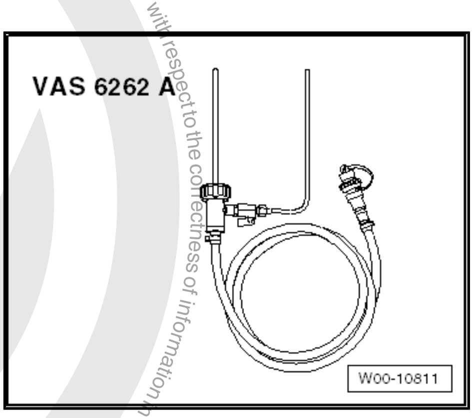
/2
W00-2958

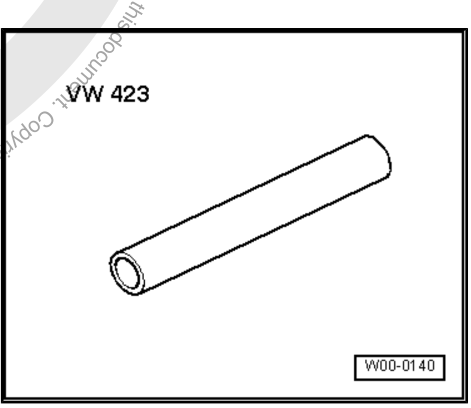
- Torque Wrench 1331 5-50Nm - VAG1331-


V.A.G 1331
W00-0427

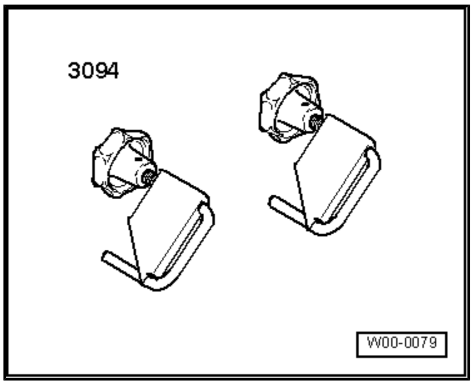
- Adapter for Oil Filling - VAS6262A-


VAS 6262 A
W00-10811

- Press Piece - Shift Rod/Alternator - VW423-


VW 423
W00-0140

- Hose Clamps - Up to 25 mm - 3094-


3094
W00-0079

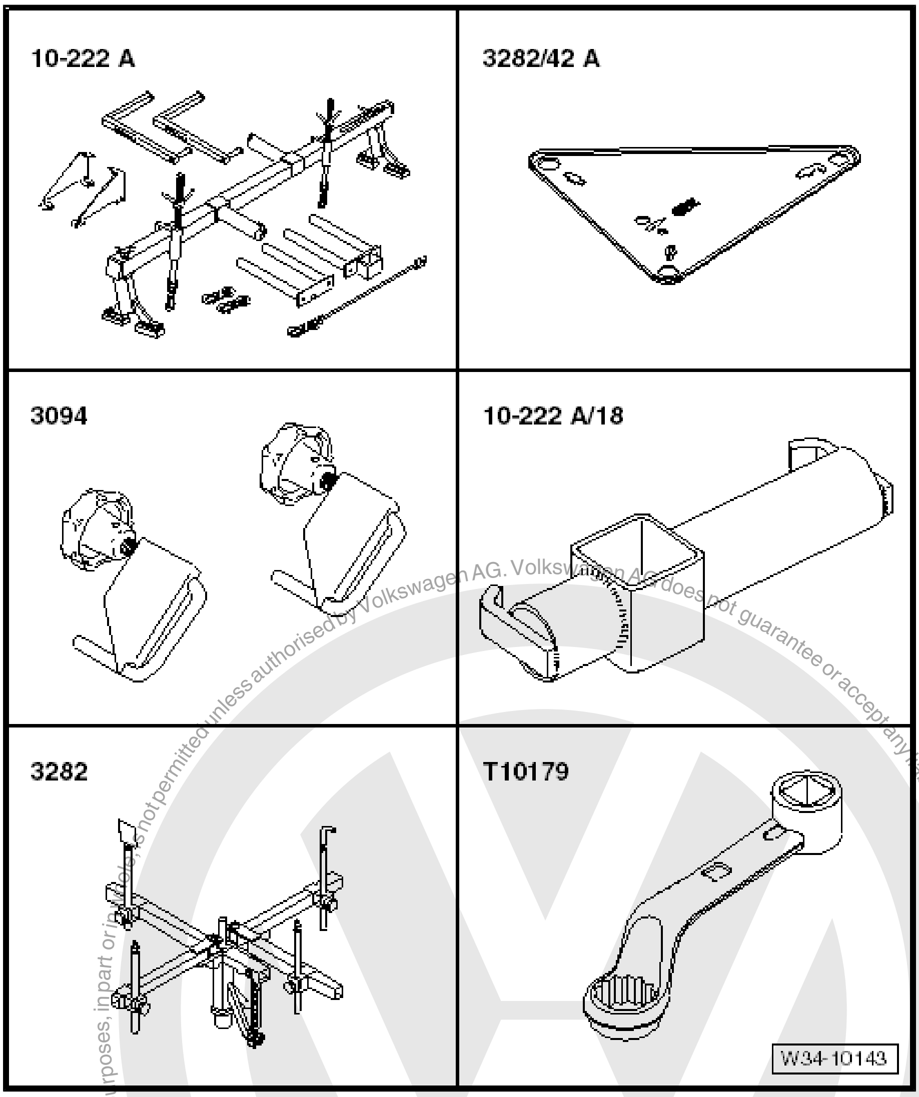
- Not illustrated:
- Used Oil Collection And Extraction Unit - SMN372500-
- Engine/Gearbox Jack - VAG1383A-
- Engine Support Bridge - Engine Support Feet - 10-222A/8-
- Engine/Gearbox Support Shackle (2 pc.) - 10-222A/12-

- Engine Sling - 2024A-
- Hose Clamps - Up to 40 mm - 3093-
- Transmission Support Jig - 3336-
- Vehicle Diagnosis Tester

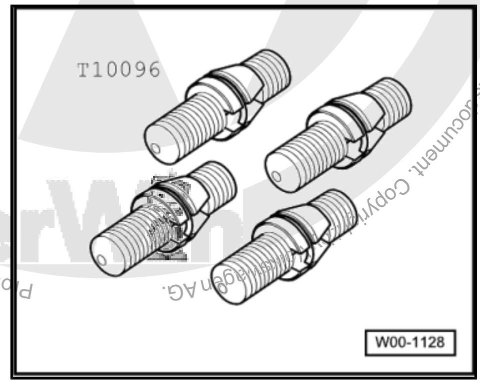
11 Special Tools

Special tools and workshop equipment required

- Engine Support Bridge - 10-222A-
- Transmission Support - Mounting Plate 42A - 3282/42A-
- Hose Clamps - Up to 25 mm - 3094-
- Engine Support Bridge - Engine Support 18 - 10-222A/18-
- Transmission Support - 3282-
- Insert Tool - 18 mm - T10179-


10-222 A
3282/42 A
3094
10-222 A/18
3282
T10179
W34-10143

- Locating Pins - T10096-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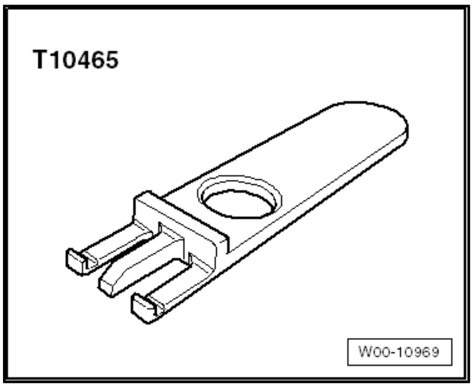
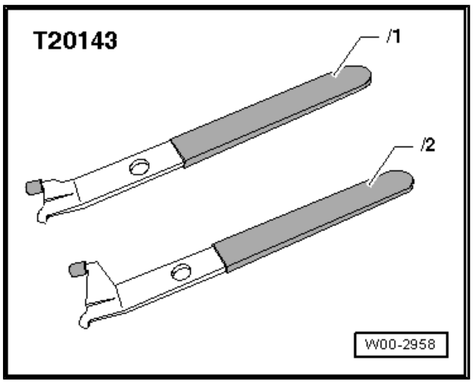
W00-1128

- Speed Sender Release Tool - T10465-


T10465
W00-10969

- Puller - Crankshaft/Power Steering Seal - T20143-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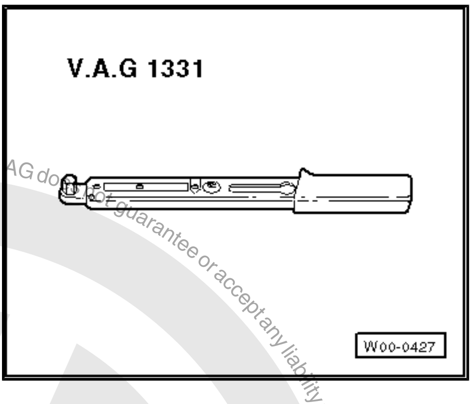
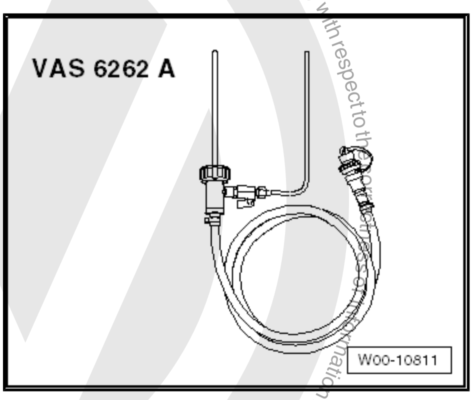
/2
W00-2958

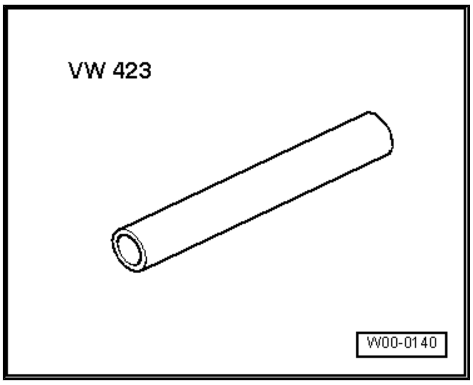
- Torque Wrench 1331 5-50Nm - VAG1331-


V.A.G 1331
W00-0427

- Adapter for Oil Filling - VAS6262A-


VAS 6262 A
W00-10811

- Press Piece - Shift Rod/Alternator - VW423-

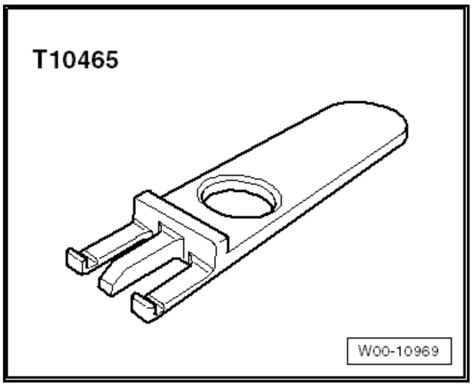


- Used Oil Collection And Extraction Unit - SMN372500-
- Multipoint Socket - T10035-
- Engine/Gearbox Jack - VAG1383A-
- Engine Sling - 2024A-
- Hose Clamps - Up to 40 mm - 3093-
- Transmission Support - Pins 29 - 3282/29-
- Transmission Support - Mounting Plate 59 - 3282/59-
- Engine/Gearbox Support Shackle (2 pc.) - 10-222A/12-
- Transmission Support Jig - 3336-
- Vehicle Diagnosis Tester

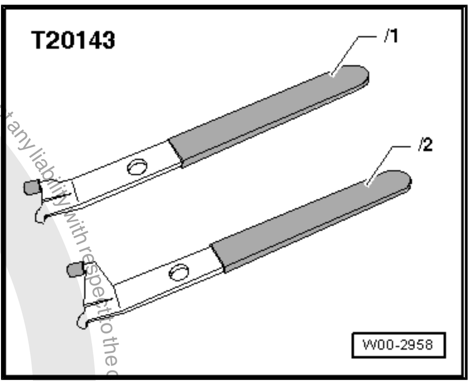
12 Special Tools

Special tools and workshop equipment required

- Speed Sender Release Tool - T10465-


T10465
W00-10969

- Puller - Crankshaft/Power Steering Seal - T20143-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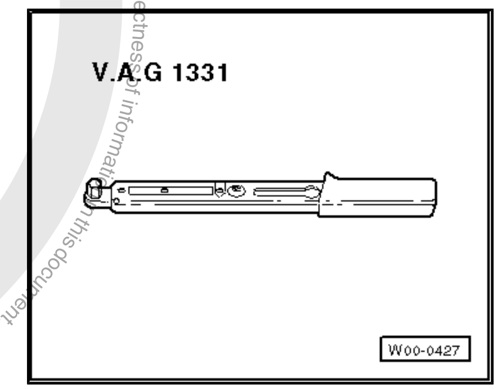
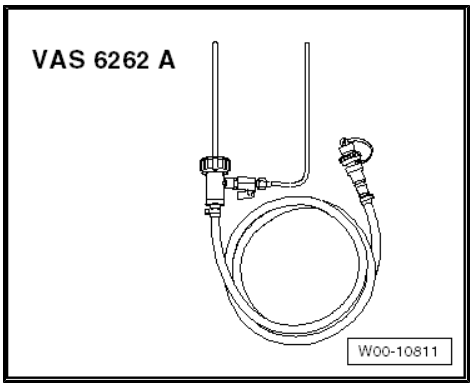
/1
/2
W00-2958

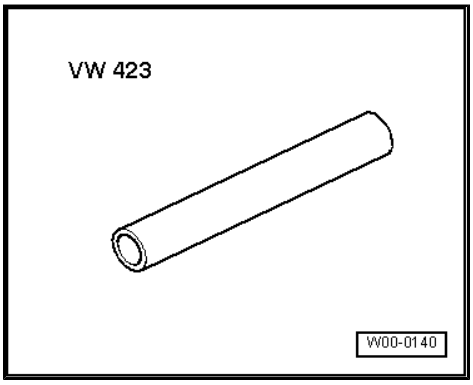
- Torque Wrench 1331 5-50Nm - VAG1331-


V.A.G 1331
W00-0427

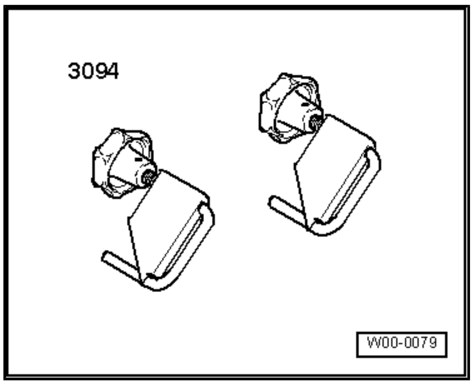
- Adapter for Oil Filling - VAS6262A-


VAS 6262 A
W00-10811

- Press Piece - Shift Rod/Alternator - VW423-



- Hose Clamps - Up to 25 mm - 3094-



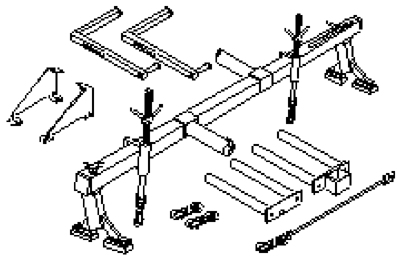
- Not illustrated:
- Used Oil Collection And Extraction Unit - SMN372500-
- Multipoint Socket - T10035-
- Tensioning Strap - T10038-
- Socket, Multipoint Bit XZN 14 - T10061-
- Insert Tool - 18 mm - T10179-
- Engine Support Bridge - Gearbox Bracket - T10346-
- Engine/Gearbox Jack - VAG1383A-
- Engine Support Bridge - 10-222A-
- Engine Support Bridge - Engine Support Feet - 10-222A/8-
- Engine/Gearbox Support Shackle (2 pc.) - 10-222A/12-
- Engine Support Bridge - Gearbox Adapter - 10-222A/13-
- Engine Sling - 2024A-
- Hose Clamps - Up to 40 mm - 3093-
- Transmission Support - 3282-
- Transmission Support - Pins 29 - 3282/29-
- Transmission Support - Mounting Plate 42A - 3282/42A-
- Engine Support Device - 3300A-
- Transmission Support Jig - 3336-
- Vehicle Diagnosis Tester

13 Special Tools

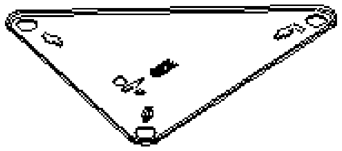
Special tools and workshop equipment required

- Engine Support Bridge - 10-222A-
- Transmission Support - Mounting Plate 42A - 3282/42A-
- Engine Support Bridge - Engine Support 18 - 10-222A/18-
- Engine Support Bridge - Engine Support 3 - 10-222A/3-
- Transmission Support - 3282-
- Insert Tool - 18 mm - T10179-

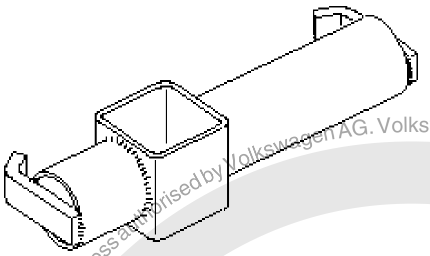
10-222 A



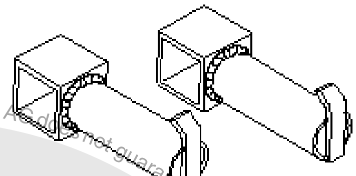
3282/42A



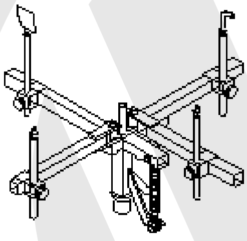
10-222 A/18



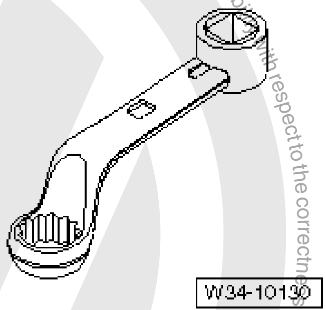
10-222 A/3



3282

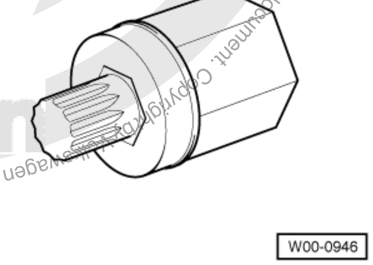


T10179

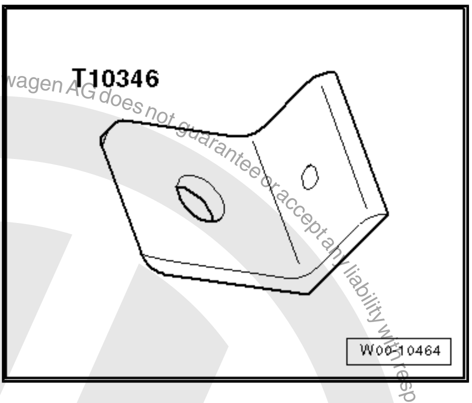


- Multipoint Socket - T10035-

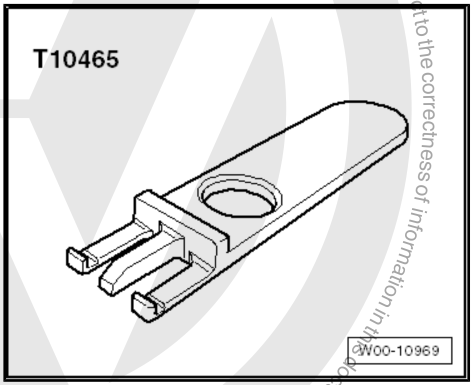
T10035



- Engine Support Bridge - Gearbox Bracket - T10346-


T10346
W00-10464

- Speed Sender Release Tool - T10465-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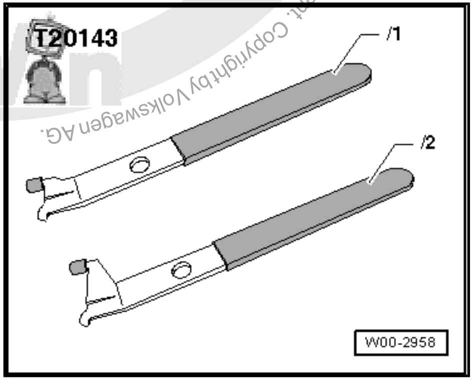
W00-10969

- Puller - Crankshaft/Power Steering Seal - T20143-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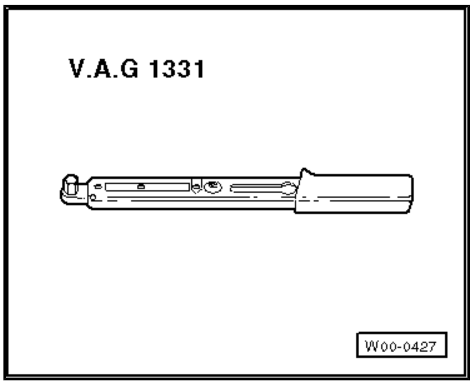
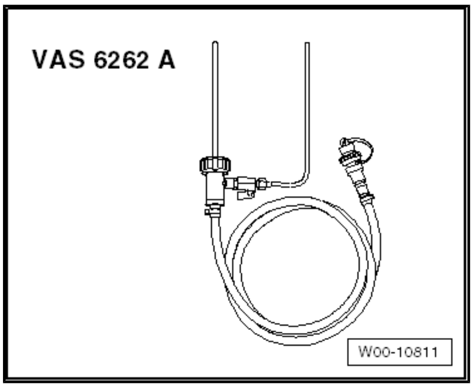
/2
W00-2958

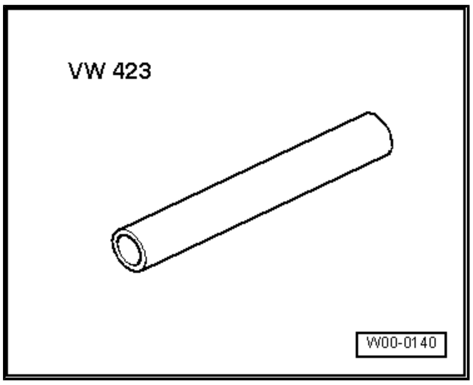
- Torque Wrench 1331 5-50Nm - VAG1331-


V.A.G 1331
W00-0427

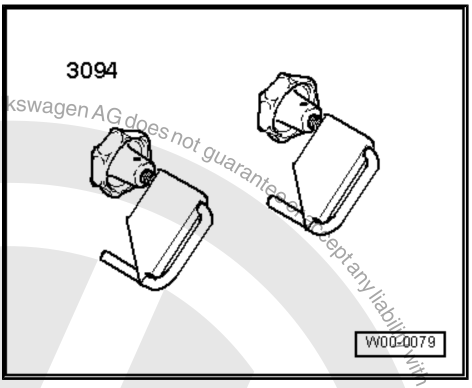
- Adapter for Oil Filling - VAS6262A-



- Press Piece - Shift Rod/Alternator - VW423-



- Hose Clamps - Up to 25 mm - 3094-



- Not illustrated:
- Used Oil Collection And Extraction Unit - SMN372500-
- Tensioning Strap - T10038-
- Engine Support Bridge - Gearbox Bracket - T10346-
- Socket and Extended Bit - T10107A-
- Engine/Gearbox Jack - VAG1383A-
- Long Hex Socket - VAG1669-
- Engine Support Bridge - Engine Support Feet - 10-222A/8-
- Engine Support - Bracket w/Spindle and Hook - 10-222A/10-
- Hose Clamps - Up to 40 mm - 3093-
- Engine Support Device - 3300A-
- Vehicle Diagnosis Tester

39 – Final Drive, Differential

1 General Information

⇒ “1.1 Bevel Box Gear Oil Level, Checking and Filling”, page 158

1.1 Bevel Box Gear Oil Level, Checking and Filling

Special tools and workshop equipment required

- Torque Wrench 1331 5-50Nm - VAG1331-
- Charging Device For Haldex Coupling 2 - VAS6291A-
- Charging Device For Haldex Coupling 2 - Adapter 2 - VAS6291/2-
- Shop Crane - Drip Tray - VAS6208-

The Bevel Box Is Attached to the Side of the Transmission and Has It Own Oil System.

Bevel box gear oil specification. Refer to ⇒ Fluid Capacity Tables; Rep. Gr. 03 .

Checking

Requirements

- The bevel box must be in its installed location.

– Remove the noise insulation. Refer to ⇒ Body Exterior; Rep. Gr. 50 ; Description and Operation .

– Place the Shop Crane - Drip Tray - VAS6208- below.

Note

Cover the area below the plug -arrow- with a cloth.

– Remove the plug -arrow- from the bevel box.

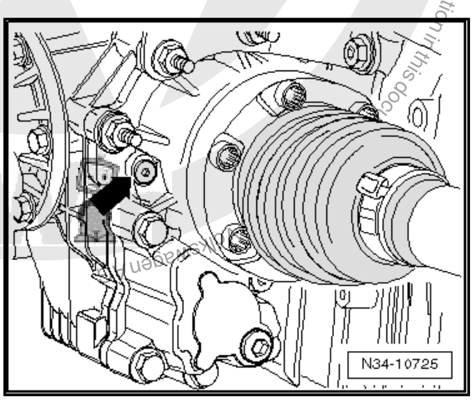
It is necessary to replace the plug -arrow-.

The oil level is correct if the bevel box is filled with oil up to the bottom edge of the hole.

If oil comes in contact with the bevel box, clean the bevel box.

– Fill with gear oil.

– Install the plug -arrow- and tighten it to 15 Nm.



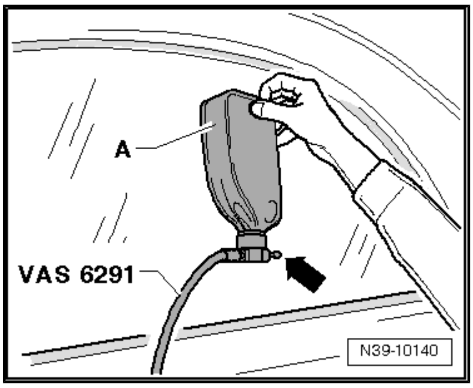
Filling

Requirements

- The vehicle must be level.

– Use the Charging Device For Haldex Coupling 2 - VAS6291A- to add oil:

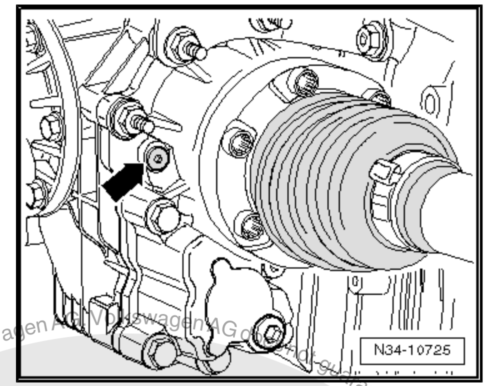
- Route the Charging Device For Haldex Coupling 2 - VAS6291A- hose behind the right drive axle and out through the right wheel housing.


A
VAS 6291
N39-10140

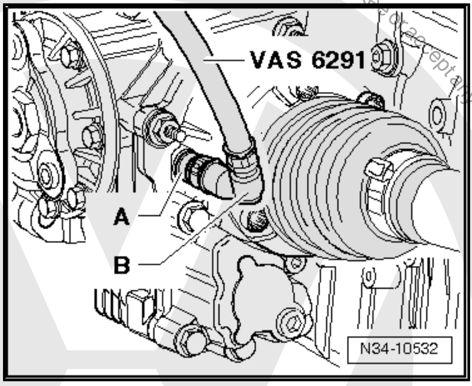
Note

Cover the area under the plug -arrow- with a cloth.

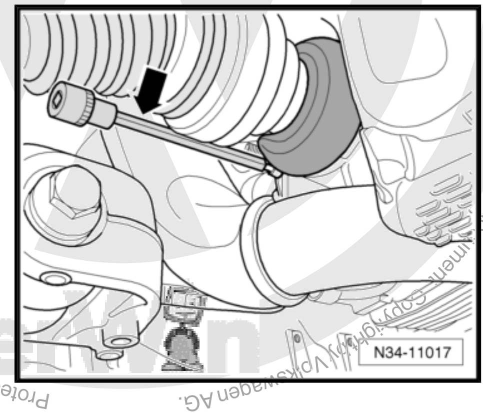
- Remove the plug -arrow- from the bevel box.



- Install the adapter Charging Device For Haldex Coupling 2 - Adapter 2 - VAS6291/2- -A- .
- Use an internal socket wrench.

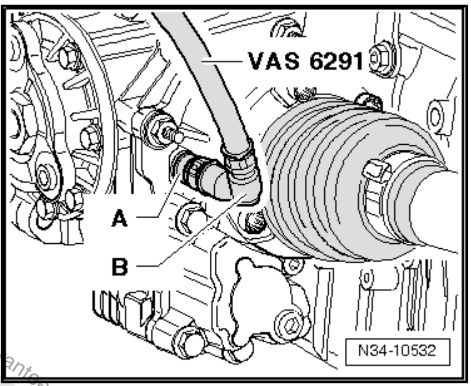

VAS 6291
A
B
N34-10532

-arrow- = 5 mm socket wrench, commercially available



– Lock the elbow -B- with the adapter -A-.

- The hose must not hang through.

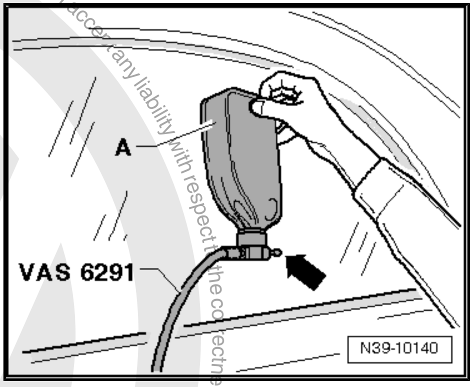


– Close the valve -arrow-.

– Attach the oil container -A- to the Charging Device For Haldex Coupling 2 - VAS6291A- .

– Open the valve -arrow- and hold the oil container as illustrated.

The bevel box is now filled.

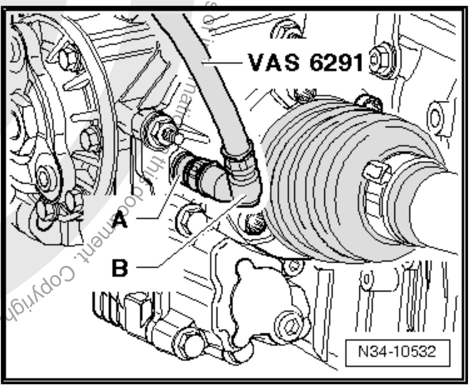


Note

♦ *Fluid should leak out of the adapter -A- if the bevel box is filled correctly.*

♦ *If the oil still does not leak out, repeat the filling procedure.*

– If the oil leaks out at the adapter -A-, hold the oil container in such a way so that any excess oil flows back into the container.



– When the oil stops flowing, disconnect the Charging Device For Haldex Coupling 2 - Adapter 2 - VAS6291/2- by pressing the tab in direction of -arrow-.

– Remove the Charging Device For Haldex Coupling 2 - Adapter 2 - VAS6291/2- .

– Install the old plug and tighten it gently.

– Start the engine, engage any gear and let the transmission turn for approximately 2 minutes.

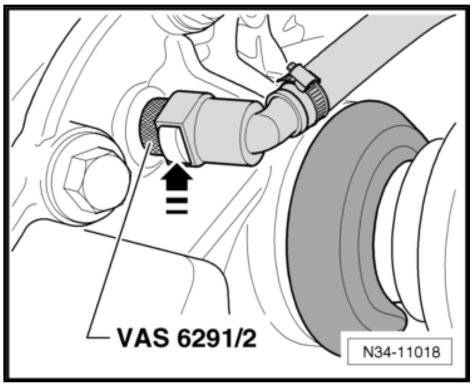
– Turn off the engine and remove the plug.

– Check the oil level and fill again with oil up to the lower edge of the hole.

– Install the plug -arrow- and tighten it to 15 Nm.

If oil comes in contact with the bevel box, clean the bevel box carefully.

– Install the noise insulation. Refer to ⇒ Body Exterior; Rep. Gr. 50 ; Removal and Installation .



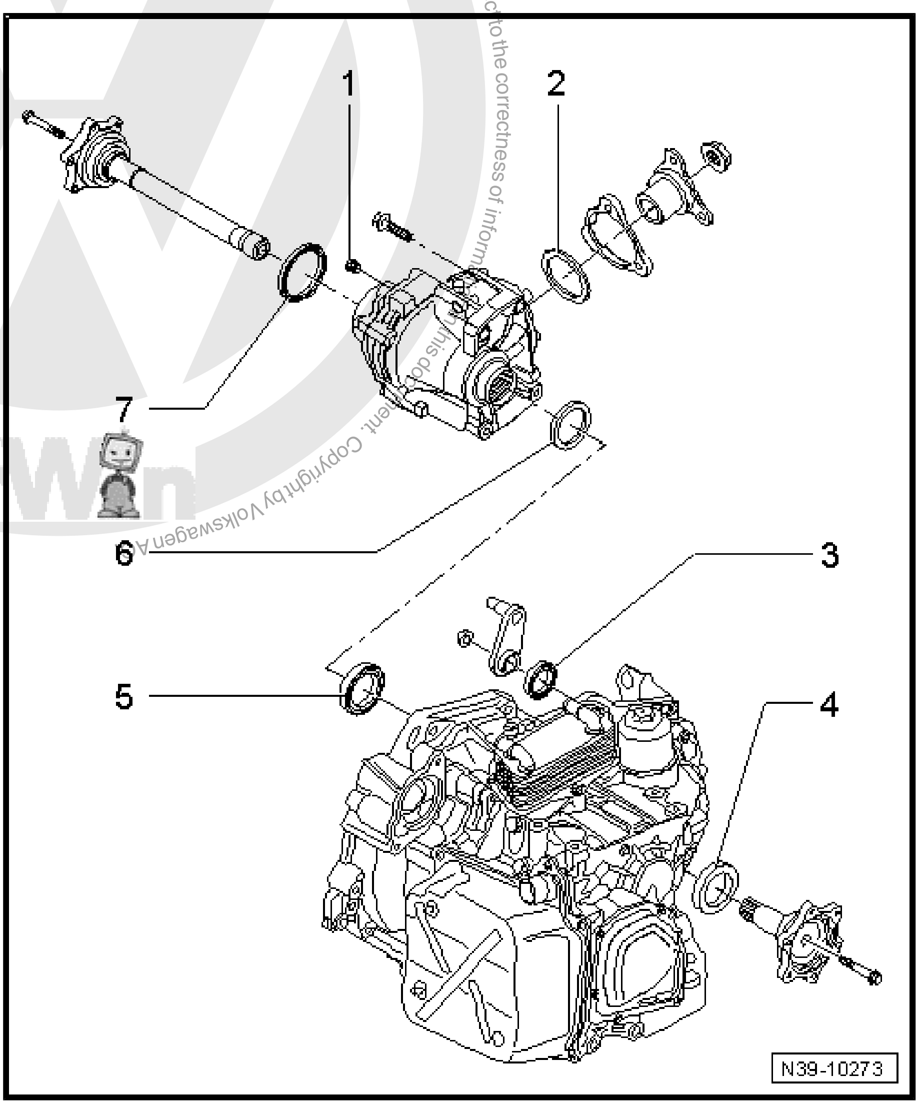
2 Description and Operation

⇒ “2.1 Overview - Transmission and Bevel Box Seals”, page 161

⇒ “2.2 Overview - Flange Shaft”, page 162

All Wheel Drive
⇒ “2.3 Overview - Flange Shaft and Bevel Box Seals”, page 163

2.1 Overview - Transmission and Bevel Box Seals



1 - Plug

- ☐ All Wheel Drive (AWD) only.

2 - Bevel Box Output Flange Seal

- ☐ Removing and installing. Refer to ⇒ “3.7 Bevel Box Output Flange and Seal”, page 172 .

3 - Selector Shaft Seal

- ☐ Removing and installing. Refer to ⇒ “5.8 Selector Shaft Lever Seal, Transmission Removed”, page 68 .

4 - Flange Shaft Seal, Left

- ☐ Removing and installing. Refer to ⇒ “3.1 Left Flange Shaft and Seal”, page 165 .

5 - Flange Shaft Seal, Right

- ☐ Removing and installing. Refer to one of the following:

  Front Wheel Drive (FWD). Refer to ⇒ “3.2 Right Stub/Flange Shaft and Seal, FWD”, page 166 .

  AWD. Refer to ⇒ “3.8 Seal, Between the Transmission and Bevel Box, Transmission Side”, page 175 .

6 - Bevel Box Seal

- ☐ Removing and installing. Refer to ⇒ “3.9 Seal, Between the Transmission and Bevel Box, Bevel Box Side”, page 176 .

7 - Flange Shaft Seal, Right

- ☐ AWD only.
- ☐ Removing and installing. Refer to ⇒ “3.4 Right Flange Shaft Seal”, page 169 .

Never loosen both bolts for the left and right flange shafts at the same time. If the differential bevel gears rotate themselves, bolts are difficult to reinstall.

2.2 Overview - Flange Shaft

The flange shaft is disassembled only for cleaning.

1 - Bolt

- ❑ 30 Nm
- ❑ Always replace
- ❑ Do not remove the bolts on both sides at the same time.

2 - Flange Shaft

3 - Protection Ring

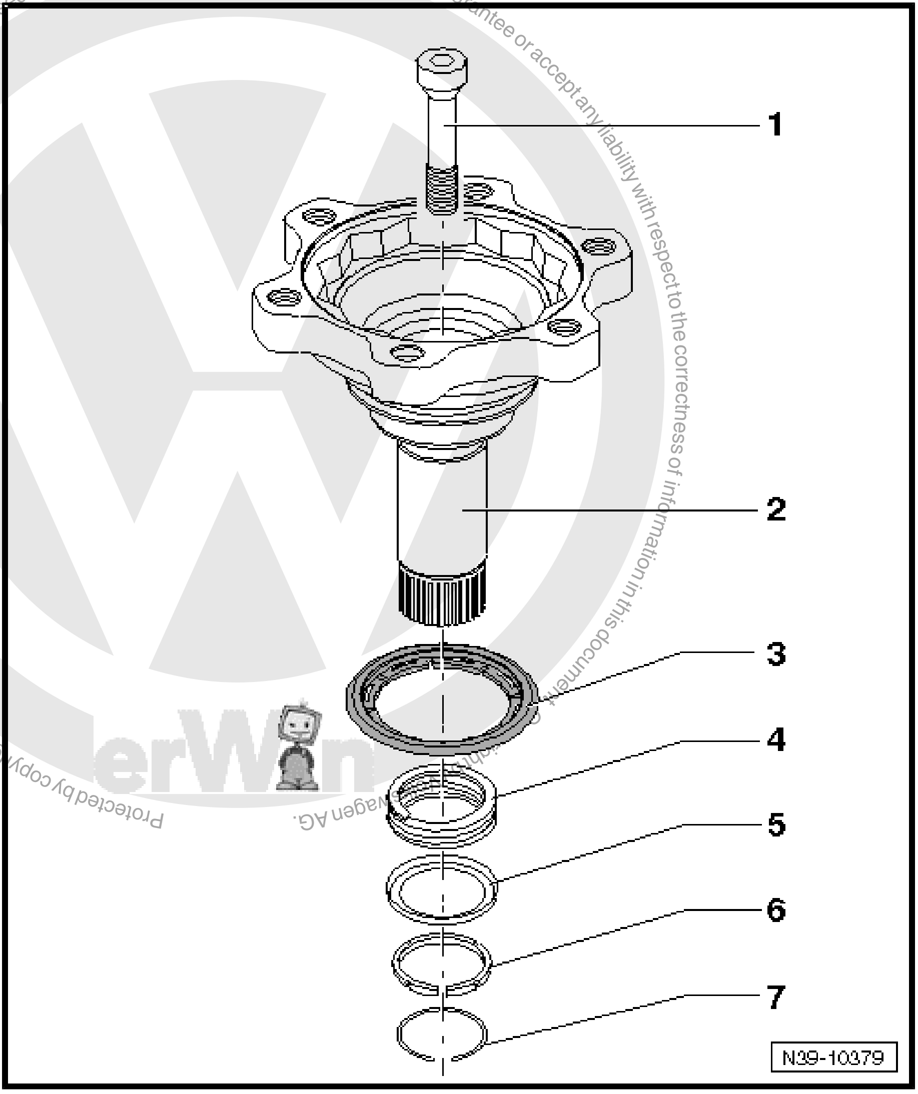
- ❑ Removing and installing. Refer to ⇒ Fig. ““Flange Shaft Protection Ring, Removing and Installing”“ , page 163 .

4 - Pressure Spring

5 - Thrust Washer

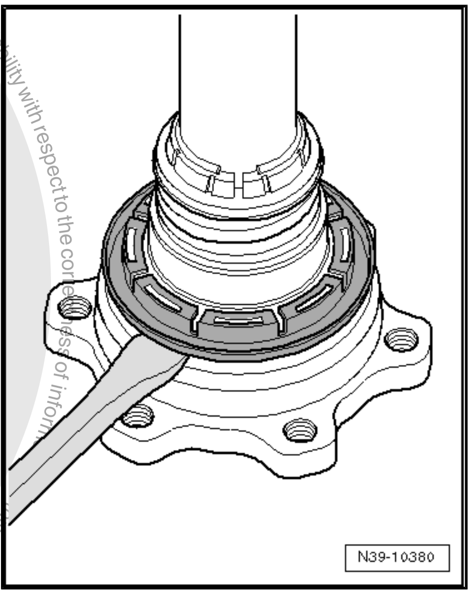
6 - Tapered Ring

7 - Lock Ring

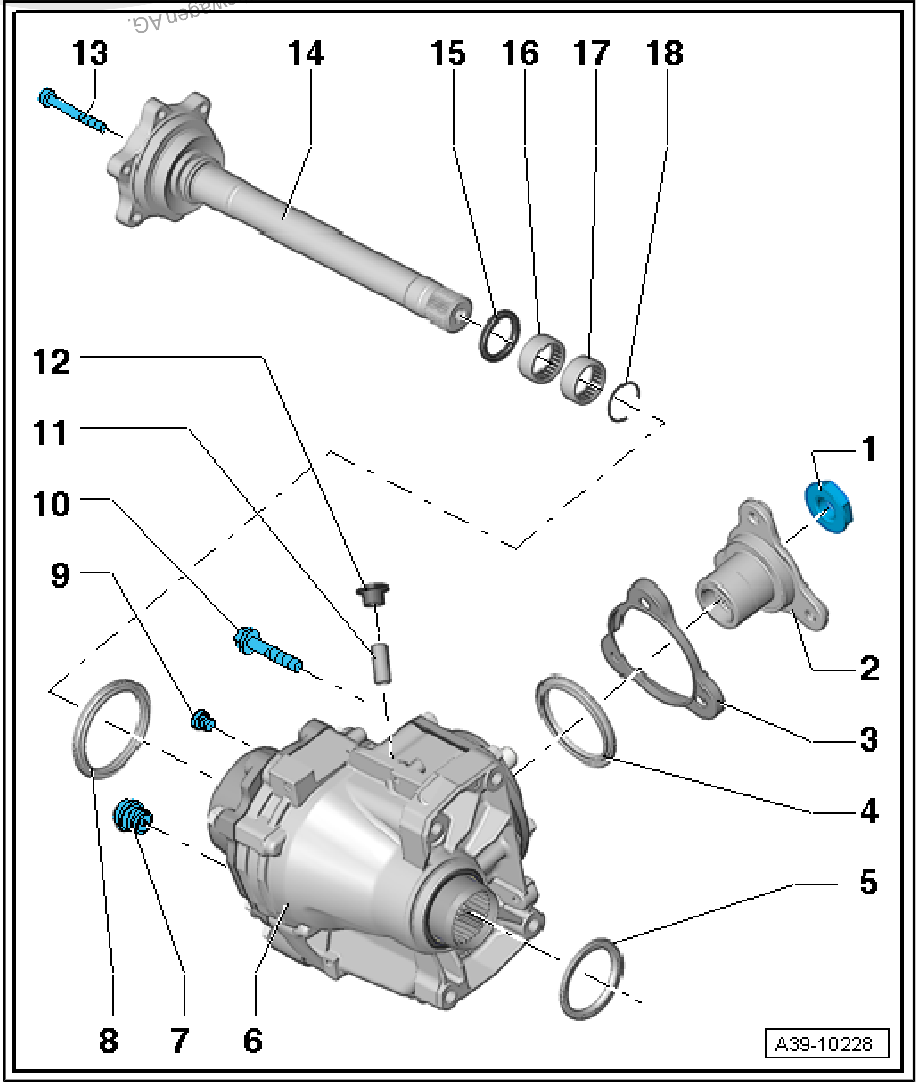


Flange Shaft Protection Ring, Removing and Installing

– Press the protection ring on by hand all the way.



2.3 Overview - Flange Shaft and Bevel Box Seals



1 - Nut

- ☐ 480 Nm
- ☐ Always replace. Refer to the Parts Catalog.
- ☐ For the output flange.

2 - Bevel Box Output Flange

3 - Output Flange Cover Cap

- ☐ Only replace if damaged.

4 - Seal

- ☐ Removing and installing. Refer to ⇒ “3.7 Bevel Box Output Flange and Seal”, page 172 .

5 - Seal

- ☐ Removing and installing. Refer to ⇒ “3.9 Seal, Between the Transmission and Bevel Box, Bevel Box Side”, page 176 .

6 - Bevel Box

- ☐ Removing and installing. Refer to ⇒ “5.17 Bevel Box”, page 103 .

7 - Oil Drain Plug

- ☐ M6 bolt: 15 Nm
- ☐ M8 bolt: 60 Nm
- ☐ For the bevel box

8 - Seal

- ☐ Removing and installing. Refer to ⇒ “3.5 Right Flange Shaft Seal, Outside of Bevel Box”, page 170 .

9 - Fill and Inspection Plug

- ☐ 15 Nm
- ☐ Always replace. Refer to the Parts Catalog.
- ☐ For the bevel box.

10 - Bolt

- ☐ 30 Nm
- ☐ Quantity: 4
- ☐ Bevel box to transmission.

11 - Ventilation Pipe

12 - Cap

13 - Countersunk Bolt

- ☐ 30 Nm
- ☐ Always replace.

14 - Right Flange Shaft

- ☐ Removing and installing. Refer to ⇒ “3.3 Right Flange Shaft, AWD”, page 167 .

15 - Seal

- ☐ Always replace after removing the right flange shaft.
- ☐ Removing and installing. Refer to ⇒ “3.4 Right Flange Shaft Seal”, page 169 .

16 - Bearings

- ☐ The needle bearings (polygon bearings) are difficult to move when the flange shaft is removed. Difficulty in movement is not an indication of faulty bearings. A test for noisy bearings can only be performed with the bearings installed.
- ☐ Check for damage on the bearing, for example, cracks on outer race, replace if necessary.
- ☐ Removing and installing. Refer to ⇒ “3.6 Right Flange Shaft Needle Bearing”, page 171 .

17 - Bearings

- ☐ The needle bearings (polygon bearings) are difficult to move when the flange shaft is removed. Difficulty in movement is not an indication of faulty bearings. A test for noisy bearings can only be performed with the bearings installed.
- ☐ Check for damage on the bearing, for example, cracks on outer race, replace if necessary.
- ☐ Removing and installing. Refer to ⇒ “3.6 Right Flange Shaft Needle Bearing”, page 171 .

18 - Lock Ring

- ☐ Always replace after removing.

3 Removal and Installation

Front Wheel Drive
⇒ “3.1 Left Flange Shaft and Seal”, page 165

Front Wheel Drive
⇒ “3.2 Right Stub/Flange Shaft and Seal, FWD”, page 166

All Wheel Drive ⇒ “3.3 Right Flange Shaft, AWD”, page 167

All Wheel Drive ⇒ “3.4 Right Flange Shaft Seal”, page 169

All Wheel Drive
⇒ “3.5 Right Flange Shaft Seal, Outside of Bevel Box”, page 170

All Wheel Drive
⇒ “3.6 Right Flange Shaft Needle Bearing”, page 171

All Wheel Drive
⇒ “3.7 Bevel Box Output Flange and Seal”, page 172

All Wheel Drive
⇒ “3.8 Seal, Between the Transmission and Bevel Box, Transmission Side”, page 175

All Wheel Drive
⇒ “3.9 Seal, Between the Transmission and Bevel Box, Bevel Box Side”, page 176

3.1 Left Flange Shaft and Seal

Special tools and workshop equipment required

- ♦ Slide Hammer Set - VW771-
- ♦ Slide Hammer Set - Hook - VW771/37-
- ♦ Seal Installer - Flange Shaft - 3305-
- ♦ Torque Wrench 1331 5-50Nm - VAG1331-
- ♦ Torque Wrench 1332 40-200Nm - VAG1332-

Removing

- The transmission is installed.

– Remove the wheel.

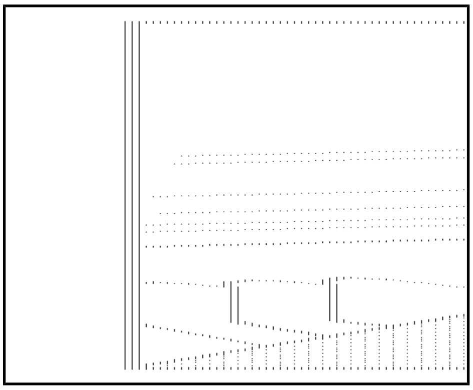
– If installed, remove the center and left part of the insulation below the engine and transmission.

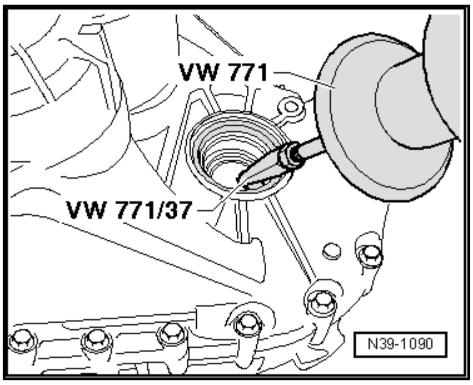
– Remove the left drive axle.

– Place a drip tray under the transmission.

– Remove the bolts for the flange shaft, by screwing two bolts into the flange and counter-holding the flange shaft using a pry bar.

– Remove the flange shaft and the pressure spring.

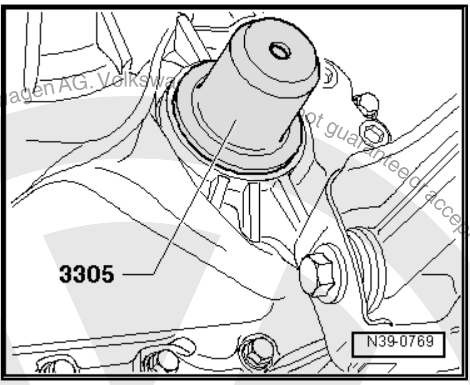




- Remove the flange seal using the Slide Hammer Set - VW771- and the Slide Hammer Set - Hook - VW771/37- .

Installing

- Fill the space between the sealing and dust lips half way with Sealing Grease for Seal - G 052 128 A1- .



- Install the seal until seated using the Seal Installer - Flange Shaft - 3305- .
- Install the flange shaft.
- Secure the flange shaft with the countersunk bolt and tighten it to 30 Nm.
- Install the ball joint to the control arm to the old marks using new bolts. Refer to ⇒ Suspension, Wheels, Steering; Rep. Gr. 40 ; Specifications .
- Install he left drive axle to the flange shaft. Refer to ⇒ Suspension, Wheels, Steering; Rep. Gr. 40 ; Specifications .
- Install the left front wheel housing liner. Refer to ⇒ Body Exterior; Rep. Gr. 66 ; Removal and Installation .
- Install the left wheel. Refer to ⇒ Suspension, Wheels, Steering; Rep. Gr. 44 ; Specifications .
- Check the Direct Shift Gearbox (DSG®) oil level and fill as necessary. Refer to ⇒ “1.2 Transmission Oil Level, Checking and Filling”, page 28 .
- Install the noise insulation.

3.2 Right Stub/Flange Shaft and Seal, FWD

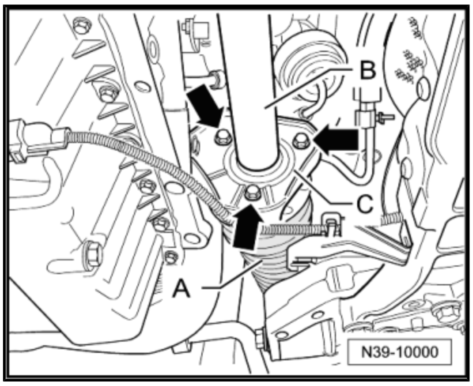
Special tools and workshop equipment required

- Seal Installer - Flange Shaft - 3377-
- Torque Wrench 1331 5-50Nm - VAG1331-
- Torque Wrench 1332 40-200Nm - VAG1332-
- Sealing Grease for Seal - G 052 128 A1-
- Universal Grease - G 052 735 A2-

Removing

- Remove the right wheel.
- Remove the noise insulation.
- Remove the right drive axle. Refer to ⇒ Suspension, Wheels, Steering; Rep. Gr. 40 ; Removal and Installation .

With an Intermediate Shaft



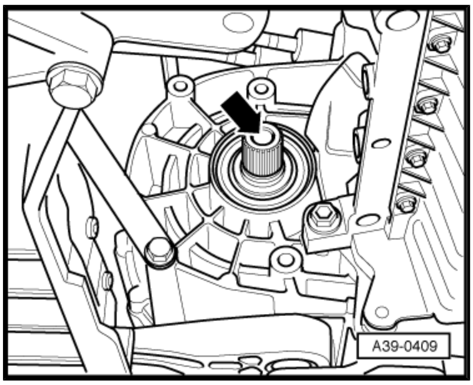
– After removing the right drive axle -A-, remove the intermediate shaft -B- from the bracket -C- -arrows- and from the transmission stub shaft.

Continuation for All

– Place a drip tray under the transmission.

– Remove the stub shaft bolt -arrow- or the flange shaft bolt.

– Remove the stub shaft or the flange shaft together with the spring.



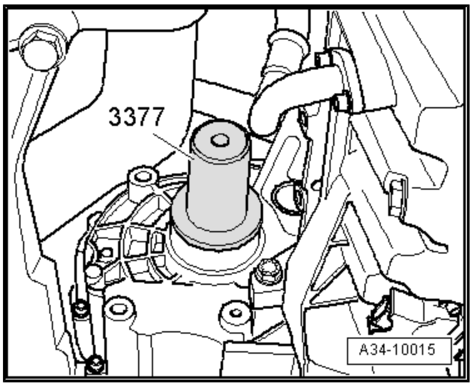
– Pry out the seal.

Installing

– Lightly oil the new seal on the outer circumference.

– Fill the space between the sealing and dust lip half way with Sealing Grease for Seal - G 052 128 A1- .

– Install the seal until seated using the Seal Installer - Flange Shaft - 3377- .



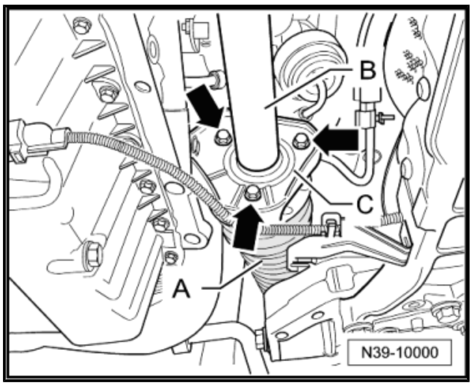
– Install the stub shaft or flange shaft.

– Attach the stub shaft or the flange shaft with a new countersunk bolt and tighten it to 30 Nm.

With an Intermediate Shaft

– Replace the O-ring on the stub shaft.

– Lubricate the splines on the stub shaft with Grease for Clutch Plate Splines - G 000 100- .



– Guide the intermediate shaft -B- through the bracket -C- and onto the stub shaft.

– Attach the intermediate shaft to the bracket -arrows-. Refer to ⇒ Suspension, Wheels, Steering; Rep. Gr. 40 ; Removal and Installation .

Continuation for All

– Install the right drive axle. Refer to ⇒ Suspension, Wheels, Steering; Rep. Gr. 40 ; Specifications .

– Install the right wheel. Refer to ⇒ Suspension, Wheels, Steering; Rep. Gr. 44 ; Specifications .

– Check the fluid level and fill, if necessary. Refer to ⇒ “1.2 Transmission Oil Level, Checking and Filling”, page 28 .

– Install the noise insulation.

3.3 Right Flange Shaft, AWD

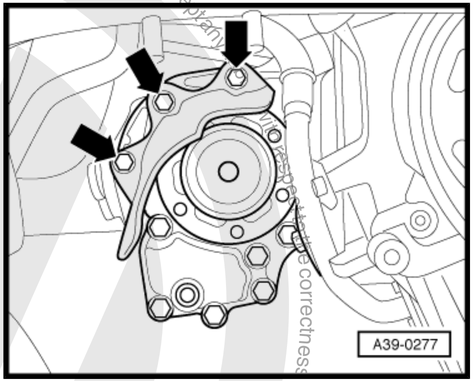
Special tools and workshop equipment required

- Used Oil Collection And Extraction Unit - SMN372500-
- Puller - Flanged Shaft - T10037-
- Socket and Extended Bit - T10107A-

Removing

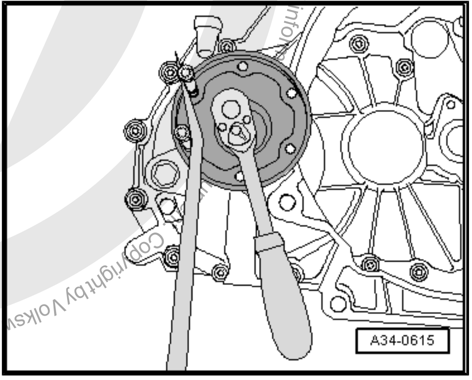
– Remove the right drive axle. Refer to ⇒ Suspension, Wheels, Steering; Rep. Gr. 40 ; Removal and Installation .

– Remove the right drive axle heat shield bolts -arrows- and shield from the bevel box.



– Place the Used Oil Collection And Extraction Unit - SMN372500- under the transmission.

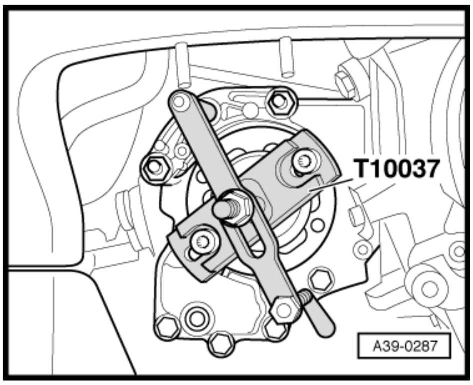
– Remove right flange shaft countersunk bolt using the Socket and Extended Bit - T10107A- by installing 2 screws in the flange and counter hold the flange shaft with a pry bar.



– Remove the flange shaft using the Puller - Flanged Shaft - T10037- .

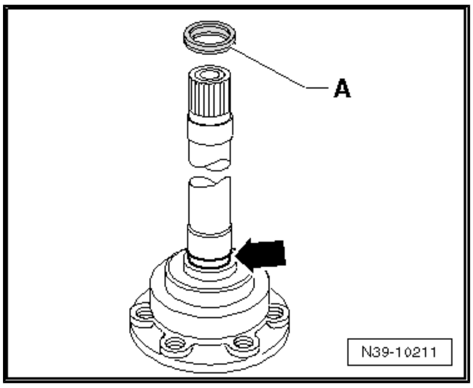
Installing

Install in reverse order of removal. Pay attention to the following:



Note

Replace the flange shaft countersunk bolt.



- Remove the seal -A- from the groove -arrow- and replace it.
- Carefully install the flange shaft while rotating it at the same time.
- Secure the flange shaft with new countersunk bolt, tightening specification. Refer to ⇒ “2.3 Overview - Flange Shaft and Bevel Box Seals”, page 163 .
- Install the right drive axle. Refer to ⇒ Suspension, Wheels, Steering; Rep. Gr. 40 ; Removal and Installation .
- Check the oil level in the bevel box and fill, as necessary. Refer to ⇒ “1.1 Bevel Box Gear Oil Level, Checking and Filling”, page 158 .

Tightening Specifications

Component	Nm
Drive axle heat shield to bevel box	25

3.4 Right Flange Shaft Seal

Special tools and workshop equipment required

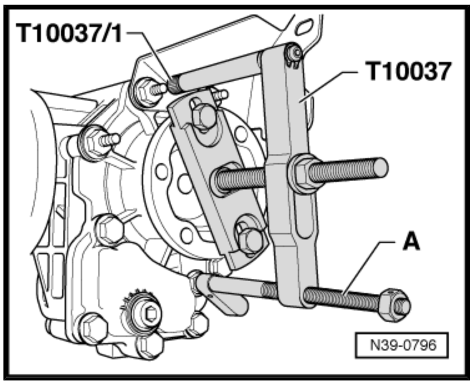
- ♦ Puller - Flanged Shaft - T10037-
- ♦ Seal Installer - Flange Shaft - T10049-
- ♦ Torque Wrench 1331 5-50Nm - VAG1331-
- ♦ Torque Wrench 1332 40-200Nm - VAG1332-
- ♦ Long Hex Socket - VAG1669- or Socket and Extended Bit - T10107A-

Removing

- The transmission is installed.

> ⚠ WARNING
>
> *Follow these instructions exactly to avoid damaging flange shaft needle bearing.*

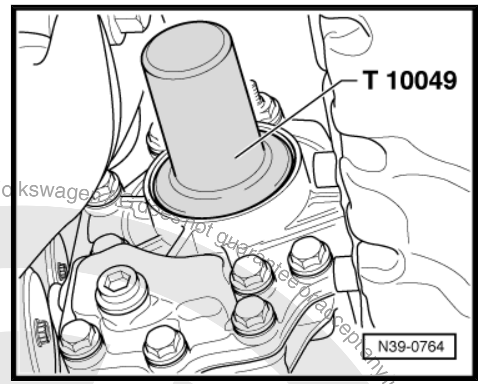
- Remove the drive axle. Refer to ⇒ Suspension, Wheels, Steering; Rep. Gr. 40 ; Removal and Installation .
- Place a drip tray under the transmission.
- Remove the right flange shaft bolt using the Long Hex Socket - VAG1669- or the Socket and Extended Bit - T10107A- .
- Install the Puller - Flanged Shaft - T10037- on the right flange shaft.
- Align the puller with the Puller - Flanged Shaft - Knurled Nut - T10037/1- and the lower support -A- parallel to the flange.
- Remove the flange shaft.



- Pry out the seal.

Installing

- Fill the space between the sealing and dust lip half way with Sealing Grease for Seal - G 052 128 A1- .



- Install the seal until seated using the Seal Installer - Flange Shaft - T10049- .
- Install the flange shaft while rotating it carefully!
- Fasten the flange shaft with the countersunk bolt and tighten it to 30 Nm.
- Install the drive axle. Refer to ⇒ Suspension, Wheels, Steering; Rep. Gr. 40 ; Removal and Installation .
- Attach the drive axle heat shield to the bevel box.
- Check the oil level in the bevel box. Refer to ⇒ “1.1 Bevel Box Gear Oil Level, Checking and Filling”, page 158 .
- Install the noise insulation, if equipped.

Tightening Specification

Drive axle heat shield to bevel box	25 Nm

3.5 Right Flange Shaft Seal, Outside of Bevel Box

Special tools and workshop equipment required

- Seal Installer - Flange Shaft - T10049-

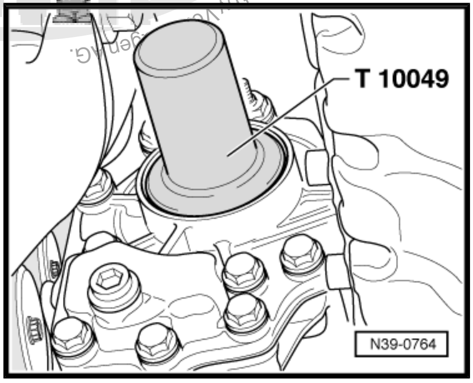
Removing

The seal can be replaced with the transmission installed.

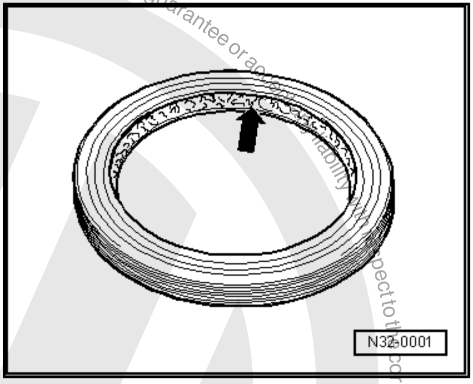
- Remove the right flange shaft. Refer to ⇒ “3.3 Right Flange Shaft, AWD”, page 167 .
- Pry the seal out of the flange shaft with a lever.

Installing

- Install the new seal using the Seal Installer - Flange Shaft - T10049- .



- Fill the area between the sealing and dust lips -arrow- halfway with Sealing Grease for Seal - G 052 128 A1- .
- Install the right flange shaft. Refer to ⇒ “3.3 Right Flange Shaft, AWD”, page 167 .
- Check the oil level in the bevel box and fill, as necessary. Refer to ⇒ “1.1 Bevel Box Gear Oil Level, Checking and Filling”, page 158 .



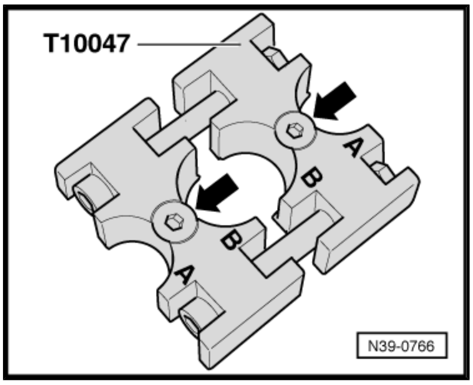
3.6 Right Flange Shaft Needle Bearing

Special tools and workshop equipment required

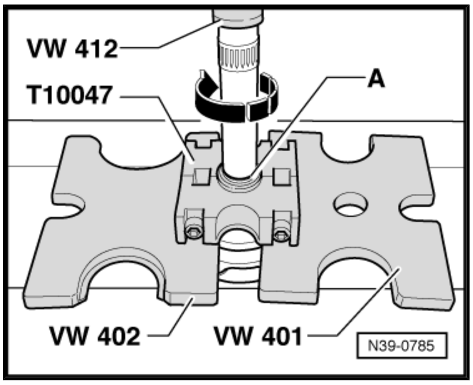
- Press Plate - VW401-
- Press Plate - VW402-
- Press Piece - Rod - VW407-
- Press Piece - Multiple Use - VW412-
- Bearing Installer - Rear Wheel Bearing Kit - 3253-
- Bearing Installer - Needle Bearing - T10047-

Removing

- Remove the right flange shaft. Refer to ⇒ “3.3 Right Flange Shaft, AWD”, page 167 .
- Install the Bearing Installer - Needle Bearing - T10047- so that the marks “B” on both parts face each other.
- • The depressions -arrows- must be under the bearing.
- Bolt the parts together.



- Remove the bearing lock ring -A-.



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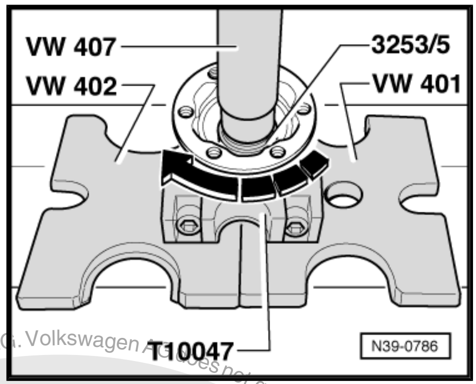


– Turn the shaft in the direction of -arrow- while removing. This way the bearing running surface on the shaft will not get damaged.

Installing

– Secure the bearing with a new lock ring.

– Install the right flange shaft. Refer to ⇒ “3.3 Right Flange Shaft, AWD”, page 167 .

3.7 Bevel Box Output Flange and Seal

Special tools and workshop equipment required

- Holding Fixture - VW313-
- Press Piece - 42mm - VW516-
- Press Piece - Multiple Use - 40-105-
- Seal Installer - Flange Shaft - T10049-
- Gearbox Support - T10108-
- Gearbox Support - Stop Plate - T10108/1-
- Puller - Taper Roller Bearing - VAG1582-
- Puller - Taper Roller Bearing - Adapter 6A - VAG1582/6A-
- Torque Wrench 1601 - VAG1601-
- Puller - Kukko 2-Arm - 70-180mm - 20/10-
- Puller - Kukko 3 Jaw - 100x100mm - 12/1-
- Slide Hammer Set - VW771-
- Slide Hammer Set - Hook - VW771/37-
- Used Oil Collection And Extraction Unit - SMN372500-
- Sealing Grease - G 052 128 A1-
- 2 M10 x 30 Bolts
- 4 M12 x 10 Nuts

Removing

Note

The bevel box output flange seal can only be replaced with the bevel box removed.

– Remove the bevel box. Refer to ⇒ “5.17 Bevel Box”, page 103 .

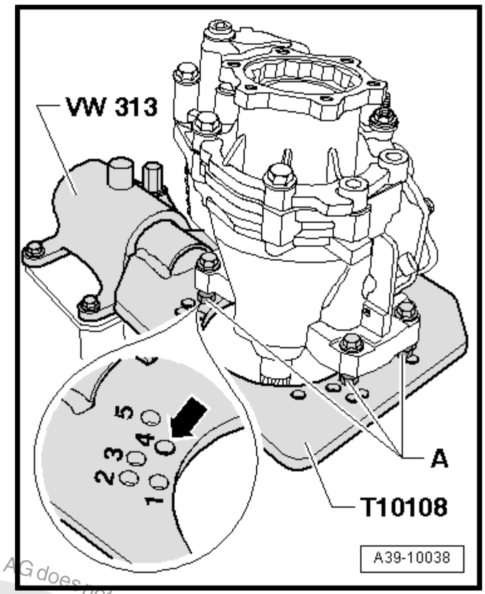
– Mount the bevel box on the hole marked with the number -4- -arrow- in the Gearbox Support - T10108- .

A - Place the M12 x 10 nut (quantity: 4) between the bevel box and gearbox support.

– Then align the bevel box to the remaining 3 holes and secure it.

– Place the Used Oil Collection And Extraction Unit - SMN372500- underneath.

– Drain the transmission fluid from the bevel box.

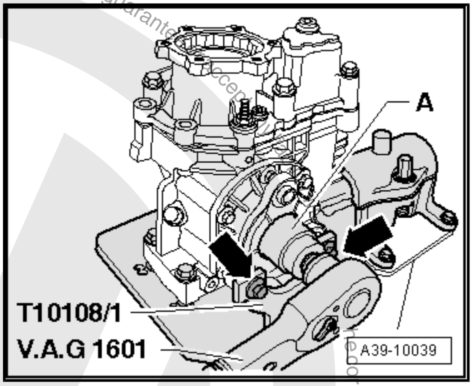


– Secure the bevel box output flange using the Gearbox Support - Stop Plate - T10108/1- by installing the M10 x 30 bolts -arrows-.

– Remove the nut from the output flange.

A - 36 mm hex socket, 3/4 inch drive

– Pivot the bevel box so that the output shaft faces upward.



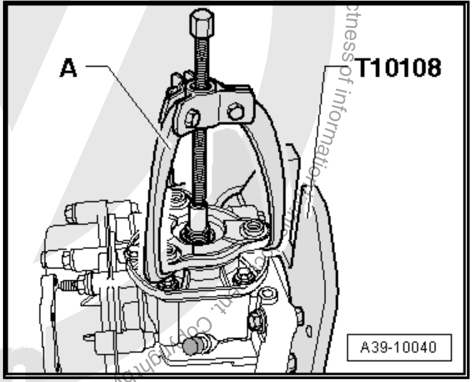
– Remove the output flange from the bevel box shaft bevel gear.

A - For example, the Puller - Kukko 3 Jaw - 100x100mm - 12/1-

Note

The inner race/tapered roller bearing remains on the output flange when the flange is being removed. The inner race is then removed from the output flange. Refer to ⇒ page 173 .

– Place the Press Piece - Multiple Use - 40-105- on the output flange.

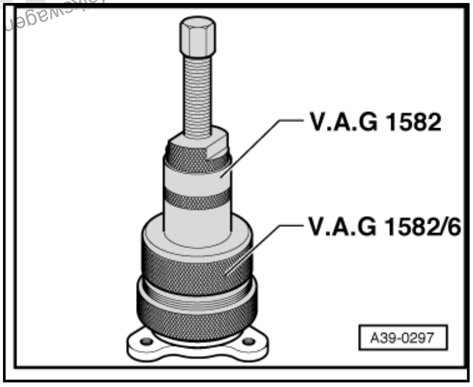


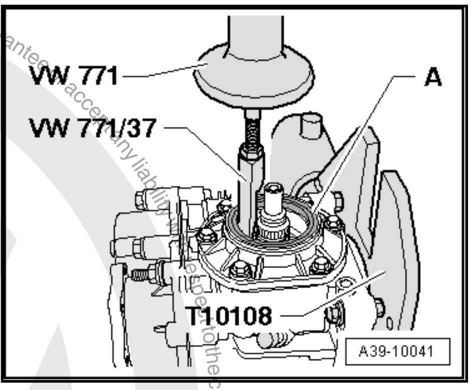
– Remove the inner race/tapered roller bearing from the output flange using the Puller - Taper Roller Bearing - VAG1582- and Puller - Taper Roller Bearing - Adapter 6A - VAG1582/6A- .

Note

Tool VAG1582/6 has been superceded by Tool VAG1582/6A.

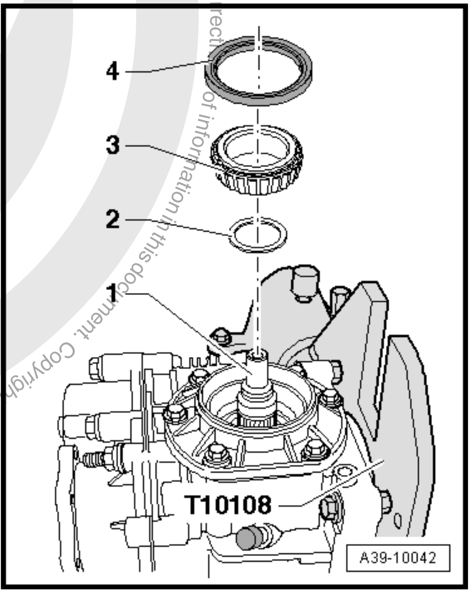
– Remove the output shaft seal -A-.




VW 771
VW 771/37
A
T10108
A39-10041

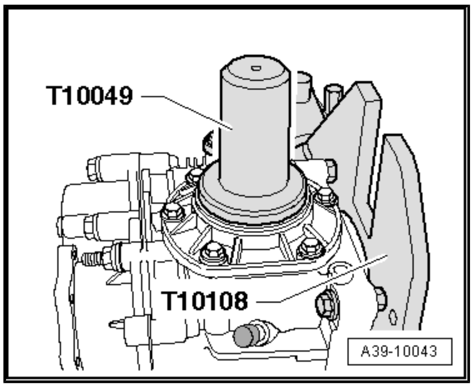
- Clean any remaining locking fluid from the thread on the shaft bevel gear.

Installing

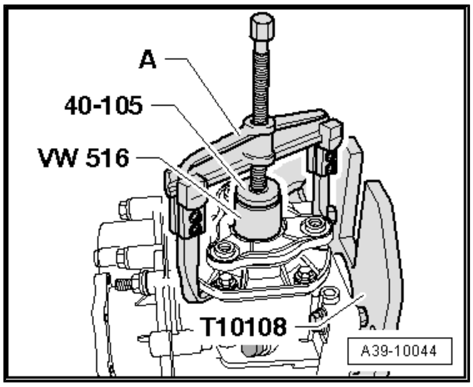

4
3
2
1
T10108
A39-10042

- The previous shim -2- for the shaft beveled gear preload -1- must be installed.

- Place the bearing inner race/tapered roller bearing -3- in the bevel box outer race.
- Lightly lubricate the outer circumference of the new output flange seal -4-.


T10049
T10108
A39-10043

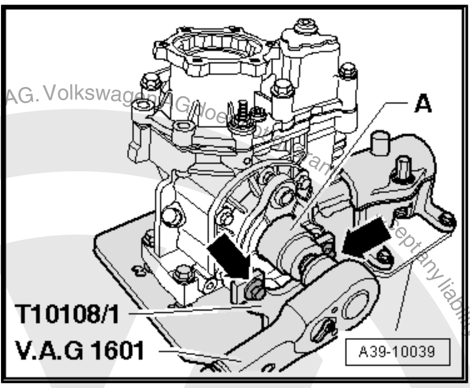
- Install the new seal using the Seal Installer - Flange Shaft - T10049- .
- Fill the space between the sealing and dust lip half way with Sealing Grease for Seal - G 052 128 A1- .


A
40-105
VW 516
T10108
A39-10044

- Install the output flange using the two-arm puller -A-.

A - For example, the Puller - Kukko 2-Arm - 70-180mm - 20/10- .

- Mount the hooks on the bottom of the pinion housing.
- Coat the threads on the nut with Liquid Locking Fluid - D 000 600 A2- .



– Tighten the new output flange nut ⇒ Item 1 (page 163) .

A - Socket attachment SW 36 for 3/4 inch drive

– Install the bevel box. Refer to ⇒ “5.17 Bevel Box”, page 103 .

– Add gear oil to the bevel box. Refer to ⇒ “1.1 Bevel Box Gear Oil Level, Checking and Filling”, page 158 .

3.8 Seal, Between the Transmission and Bevel Box, Transmission Side

Special tools and workshop equipment required

- Puller - Crankshaft/Power Steering Seal - T20143-
- Used Oil Collection And Extraction Unit - SMN372500-
- Seal Installer - Bevel Box - T10243-

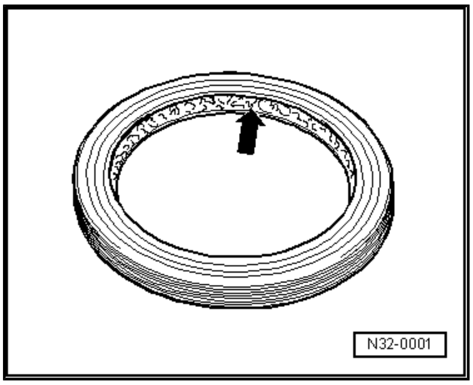
Removing

– Remove the bevel box. Refer to ⇒ “5.17 Bevel Box”, page 103 .

Place the Used Oil Collection And Extraction Unit - SMN372500- under the transmission.

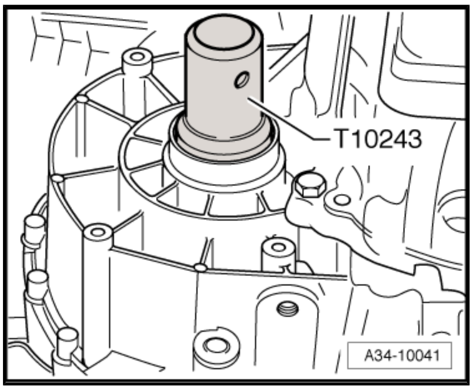
– Pry out the seal from the transmission using the Puller - Crankshaft/Power Steering Seal - Hook 1 - T20143/1- or Puller - Crankshaft/Power Steering Seal - Hook 2 - T20143/2- .

Installing



– Fill the area between the sealing and dust lips -arrow- halfway with Sealing Grease for Seal - G 052 128 A1- .

– Lightly lubricate the outer circumference of the seal.



– Carefully install the seal all the way using the Seal Installer - Bevel Box - T10243- .

– Install the bevel box. Refer to ⇒ “5.17 Bevel Box”, page 103 .

– Check the gear oil level in the bevel box and fill, if necessary. Refer to ⇒ “1.1 Bevel Box Gear Oil Level, Checking and Filling”, page 158 .

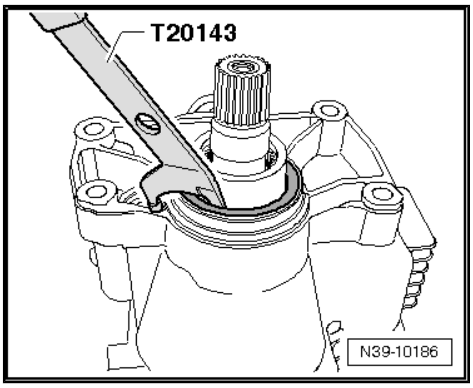
3.9 Seal, Between the Transmission and Bevel Box, Bevel Box Side

Special tools and workshop equipment required

- ♦ Puller - Crankshaft/Power Steering Seal - T20143-
- ♦ Seal Installer - Bevel Box - T10298-

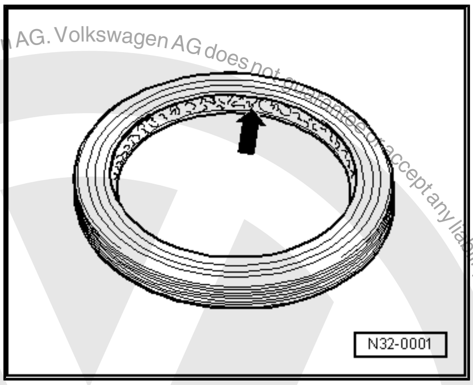
Removing

- – Remove the bevel box. Refer to ⇒ “5.17 Bevel Box”, page 103 .
- – Pry out the seal on the bevel box using the Puller - Crankshaft/Power Steering Seal - Hook 1 - T20143/1- or Puller - Crankshaft/Power Steering Seal - Hook 2 - T20143/2- .

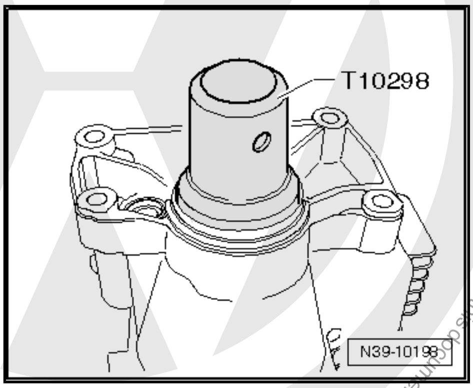


Installing

- – Fill the area between the sealing and dust lips -arrow- halfway using Sealing Grease for Seal - G 052 128 A1- .
- – Lightly lubricate the outer circumference of the seal.



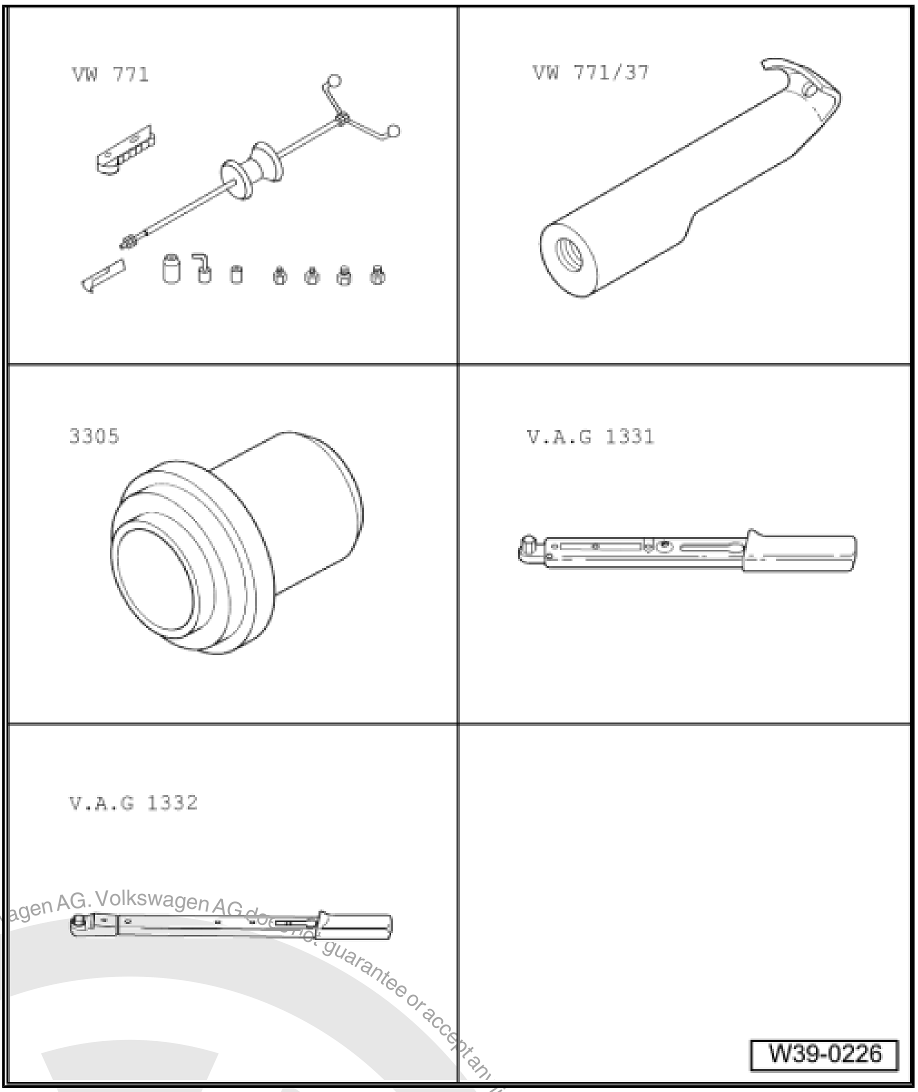
- – Install the seal all the way using the Seal Installer - Bevel Box - T10298- .



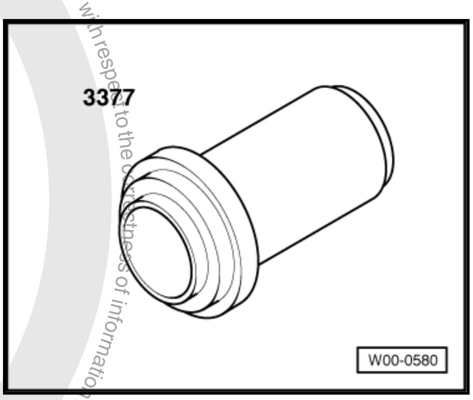
4 Special Tools

Special tools and workshop equipment required

- Slide Hammer Set - VW771-
- Slide Hammer Set - Hook - VW771/37-
- Seal Installer - Flange Shaft - 3305-
- Torque Wrench 1331 5-50Nm - VAG1331-
- Torque Wrench 1332 40-200Nm - VAG1332-


VW 771
VW 771/37
3305
V.A.G 1331
V.A.G 1332
W39-0226

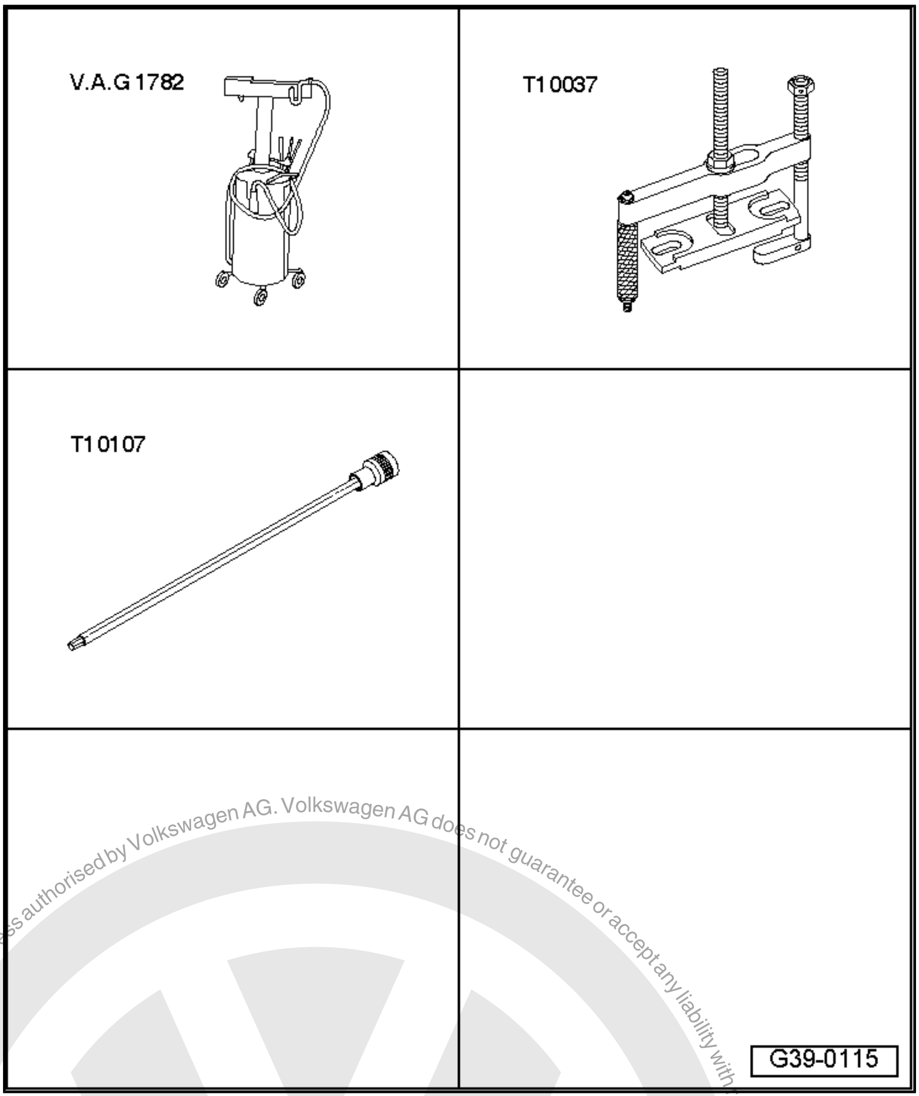
- Seal Installer - Flange Shaft - 3377-


3377
W00-0580

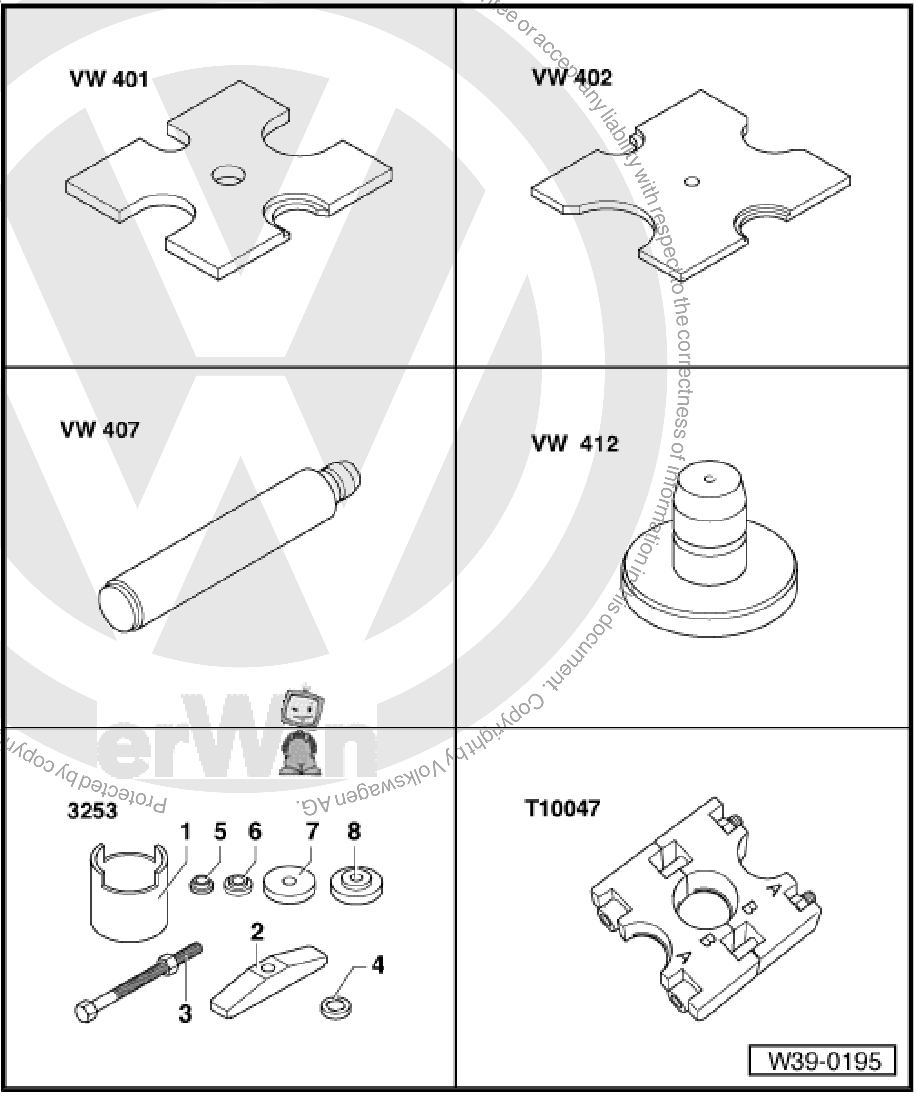
5 Special Tools

Special tools and workshop equipment required

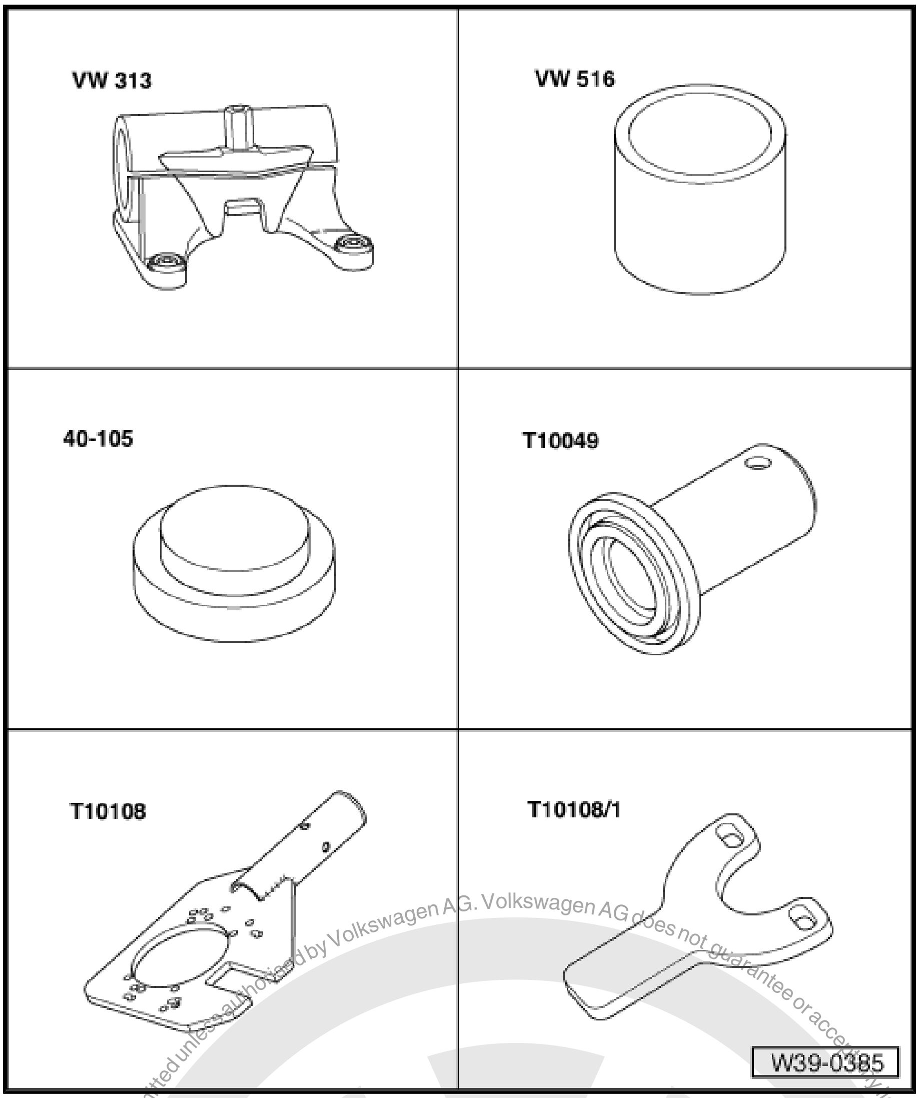
- ♦ Used Oil Collection And Extraction Unit - SMN372500-
- ♦ Puller - Flanged Shaft - T10037-
- ♦ Socket and Extended Bit - T10107A-



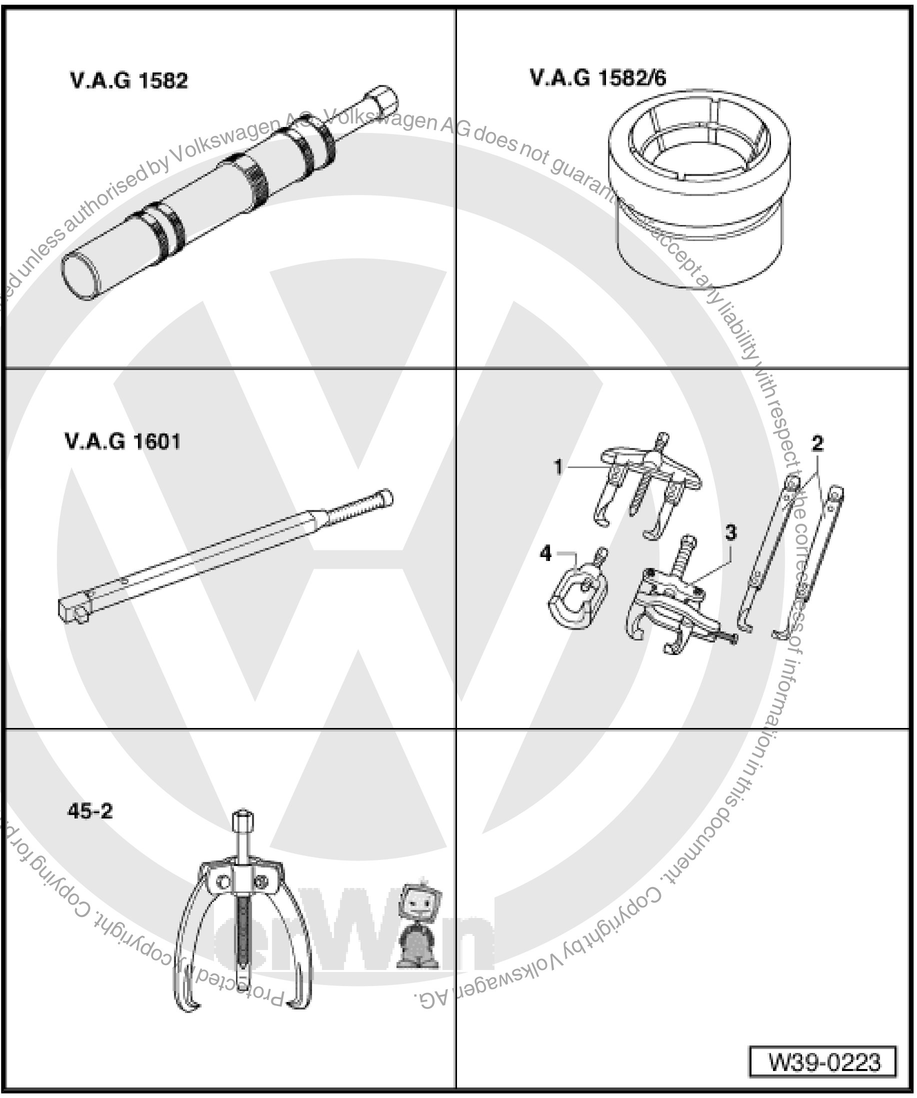
- Press Plate - VW401-
- Press Plate - VW402-
- Press Piece - Rod - VW407-
- Press Piece - Multiple Use - VW412-
- Bearing Installer - Rear Wheel Bearing Kit - 3253-
- Bearing Installer - Needle Bearing - T10047-


VW 401
VW 402
VW 407
VW 412
3253
1
5
6
7
8
2
4
3
T10047
A
B
B
A
W39-0195

- Holding Fixture - VW313-
- Press Piece - 42mm - VW516-
- Press Piece - Multiple Use - 40-105-
- Seal Installer - Flange Shaft - T10049-
- Gearbox Support - T10108-
- Gearbox Support - Stop Plate - T10108/1-

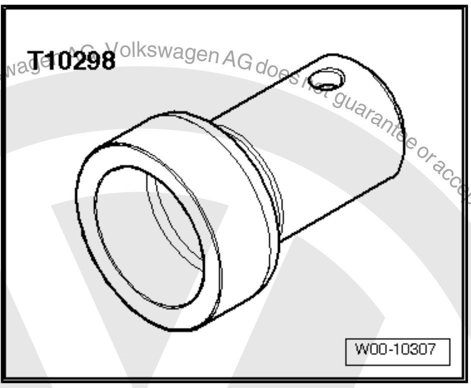

VW 313
VW 516
40-105
T10049
T10108
T10108/1
W39-0385

- Puller - Taper Roller Bearing - VAG1582-
- Puller - Taper Roller Bearing - Adapter 6A - VAG1582/6A-
- Torque Wrench 1601 - VAG1601-
- -1- Puller - Kukko 2-Arm - 70-180mm - 20/10-
- Puller - Kukko 3 Jaw - 100x100mm - 12/1-

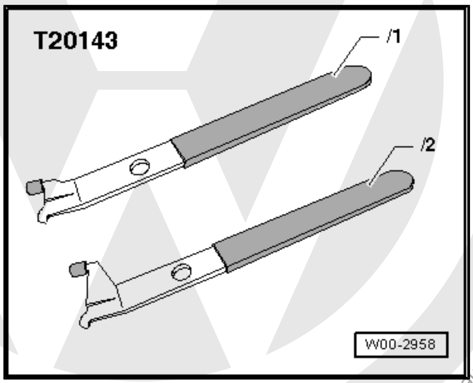

V.A.G 1582
V.A.G 1582/6
V.A.G 1601
1
2
3
4
45-2
W39-0223

- Seal Installer - Bevel Box - T10243-

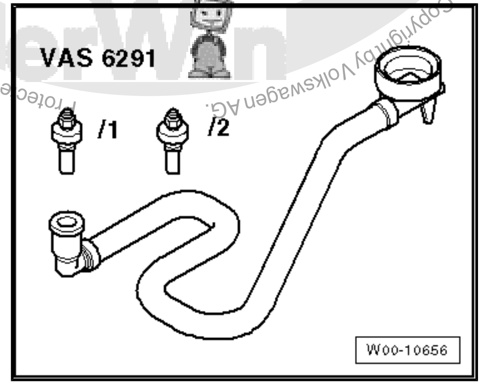
- Seal Installer - Bevel Box - T10298-



- Puller - Crankshaft/Power Steering Seal - T20143-



- Charging Device For Haldex Coupling 2 - Adapter 2 - VAS6291/2-



- Not illustrated:
- Slide Hammer Set - VW771-
- Slide Hammer Set - Hook - VW771/37-
- Torque Wrench 1331 5-50Nm - VAG1331-
- Torque Wrench 1332 40-200Nm - VAG1332-
- Long Hex Socket - VAG1669-
- Shop Crane - Drip Tray - VAS6208-
- Charging Device For Haldex Coupling 2 - VAS6291A-

6 Revision History

Revision	Date	Job Type	Feedback #	Notes	Editor
5	03/18/2015	Factory Update	N/A		Eric Puterbaugh
4	11/05/2014	Factory Update	N/A		Yamn brick
3	11/20/2010	Correction	234567,345678		Roberts
2	4/20/2010	Feedback	123456		Jim Harder
1	1/27/2010	Factory Update	N/A		Travis Cagle

Cautions & Warnings

Please read these WARNINGS and CAUTIONS before proceeding with maintenance and repair work. You must answer that you have read and you understand these WARNINGS and CAUTIONS before you will be allowed to view this information.

- If you lack the skills, tools and equipment, or a suitable workshop for any procedure described in this manual, we suggest you leave such repairs to an authorized Volkswagen retailer or other qualified shop. We especially urge you to consult an authorized Volkswagen retailer before beginning repairs on any vehicle that may still be covered wholly or in part by any of the extensive warranties issued by Volkswagen.

- Disconnect the battery negative terminal (ground strap) whenever you work on the fuel system or the electrical system. Do not smoke or work near heaters or other fire hazards. Keep an approved fire extinguisher handy.

- Volkswagen is constantly improving its vehicles and sometimes these changes, both in parts and specifications, are made applicable to earlier models. Therefore, part numbers listed in this manual are for reference only. Always check with your authorized Volkswagen retailer parts department for the latest information.

- Any time the battery has been disconnected on an automatic transmission vehicle, it will be necessary to reestablish Transmission Control Module (TCM) basic settings using the VAG 1551 Scan Tool (ST).

- Never work under a lifted vehicle unless it is solidly supported on stands designed for the purpose. Do not support a vehicle on cinder blocks, hollow tiles or other props that may crumble under continuous load. Never work under a vehicle that is supported solely by a jack. Never work under the vehicle while the engine is running.

- For vehicles equipped with an anti-theft radio, be sure of the correct radio activation code before disconnecting the battery or removing the radio. If the wrong code is entered when the power is restored, the radio may lock up and become inoperable, even if the correct code is used in a later attempt.

- If you are going to work under a vehicle on the ground, make sure that the ground is level. Block the wheels to keep the vehicle from rolling. Disconnect the battery negative terminal (ground strap) to prevent others from starting the vehicle while you are under it.

- Do not attempt to work on your vehicle if you do not feel well. You increase the danger of injury to yourself and others if you are tired, upset or have taken medicine or any other substances that may impair you or keep you from being fully alert.

- Never run the engine unless the work area is well ventilated. Carbon monoxide (CO) kills.

- Always observe good workshop practices. Wear goggles when you operate machine tools or work with acid. Wear goggles, gloves and other protective clothing whenever the job requires working with harmful substances.

- Tie long hair behind your head. Do not wear a necktie, a scarf, loose clothing, or a necklace when you work near machine tools or running engines. If your hair, clothing, or jewelry were to get caught in the machinery, severe injury could result.

- Do not re-use any fasteners that are worn or deformed in normal use. Some fasteners are designed to be used only once and are unreliable and may fail if used a second time. This includes, but is not limited to, nuts, bolts, washers, circlips and cotter pins. Always follow the recommendations in this manual - replace these fasteners with new parts where indicated, and any other time it is deemed necessary by inspection.

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Version 1.0

Cautions & Warnings

- Illuminate the work area adequately but safely. Use a portable safety light for working inside or under the vehicle. Make sure the bulb is enclosed by a wire cage. The hot filament of an accidentally broken bulb can ignite spilled fuel or oil.

- Friction materials such as brake pads and clutch discs may contain asbestos fibers. Do not create dust by grinding, sanding, or by cleaning with compressed air. Avoid breathing asbestos fibers and asbestos dust. Breathing asbestos can cause serious diseases such as asbestosis or cancer, and may result in death.

- Finger rings should be removed so that they cannot cause electrical shorts, get caught in running machinery, or be crushed by heavy parts.

- Before starting a job, make certain that you have all the necessary tools and parts on hand. Read all the instructions thoroughly; do not attempt shortcuts. Use tools that are appropriate to the work and use only replacement parts meeting Volkswagen specifications. Makeshift tools, parts and procedures will not make good repairs.

- Catch draining fuel, oil or brake fluid in suitable containers. Do not use empty food or beverage containers that might mislead someone into drinking from them. Store flammable fluids away from fire hazards. Wipe up spills at once, but do not store the oily rags, which can ignite and burn spontaneously.

- Use pneumatic and electric tools only to loosen threaded parts and fasteners. Never use these tools to tighten fasteners, especially on light alloy parts. Always use a torque wrench to tighten fasteners to the tightening torque listed.

- Keep sparks, lighted matches, and open flame away from the top of the battery. If escaping hydrogen gas is ignited, it will ignite gas trapped in the cells and cause the battery to explode.

- Be mindful of the environment and ecology. Before you drain the crankcase, find out the proper way to dispose of the oil. Do not pour oil onto the ground, down a drain, or into a stream, pond, or lake. Consult local ordinances that govern the disposal of wastes.

- The air-conditioning (A/C) system is filled with a chemical refrigerant that is hazardous. The A/C system should be serviced only by trained automotive service technicians using approved refrigerant recovery/recycling equipment, trained in related safety precautions, and familiar with regulations governing the discharging and disposal of automotive chemical refrigerants.

- Before doing any electrical welding on vehicles equipped with anti-lock brakes (ABS), disconnect the battery negative terminal (ground strap) and the ABS control module connector.

- Do not expose any part of the A/C system to high temperatures such as open flame. Excessive heat will increase system pressure and may cause the system to burst.

- When boost-charging the battery, first remove the fuses for the Engine Control Module (ECM), the Transmission Control Module (TCM), the ABS control module, and the trip computer. In cases where one or more of these components is not separately fused, disconnect the control module connector(s).

- Some of the vehicles covered by this manual are equipped with a supplemental restraint system (SRS), that automatically deploys an airbag in the event of a frontal impact. The airbag is operated by an explosive device. Handled improperly or without adequate safeguards, it can be accidentally activated and cause serious personal injury. To guard against personal injury or airbag system failure, only trained Volkswagen Service technicians should test, disassemble or service the airbag system.

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Version 1.0

Cautions & Warnings

- Do not quick-charge the battery (for boost starting) for longer than one minute, and do not exceed 16.5 volts at the battery with the boosting cables attached. Wait at least one minute before boosting the battery a second time.

- Never use a test light to conduct electrical tests of the airbag system. The system must only be tested by trained Volkswagen Service technicians using the VAG 1551 Scan Tool (ST) or an approved equivalent. The airbag unit must never be electrically tested while it is not installed in the vehicle.

- Some aerosol tire inflators are highly flammable. Be extremely cautious when repairing a tire that may have been inflated using an aerosol tire inflator. Keep sparks, open flame or other sources of ignition away from the tire repair area. Inflate and deflate the tire at least four times before breaking the bead from the rim. Completely remove the tire from the rim before attempting any repair.

- When driving or riding in an airbag-equipped vehicle, never hold test equipment in your hands or lap while the vehicle is in motion. Objects between you and the airbag can increase the risk of injury in an accident.

I have read and I understand these Cautions and Warnings.

back **OK**

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